URBAN DESIGN ALTERNATIVES
FOR
CRYSTAL LAKES, OHIO

BY:
LARRY W. HAPPEL

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COMMITTEE MEMBERS:

MS. SALLY SCHAUMAN
MR. TERRY J. BROWN

PREFACE

Crystal Lakes, Ohio is facing urban sprawl. For many years this southern Ohio community was a separate entity, surrounded by farmland and large tracts of natural open space. Today this lake resort community is experiencing urban expansion in the form of large plat development and the steady reaching out of Dayton, Ohio's urban boundaries. While the total inclusion of Crystal Lakes into a solid urban mass in some years away, the signs indicating its coming are quite evident and leads to the inevitable question of what can and should occur in the future.

The future could be approached by concerning one's self with the internal development of Crystal Lakes but such an approach would be much too narrow to grasp the problems at hand. For the growing urban pressure facing this community, when compared to internal development, quickly disintegrates any design solutions with the uncertainties of urban sprawl and its effect on possible development.

I have undertaken this thesis project with the intent of increasing my awareness of urban sprawl and how, as a Landscape Architect, I might better foresee design alternatives and advise others so these alternatives do not contribute to urban sprawl.

An essential part of this thesis is the understanding that design and design alternatives can and should be approached by changes in the social, political, financial realities and regulations.

Perhaps a more appropriate title might have been "Urban Planning Alternatives" in light of the proposed alternatives found in the conclusion. However, the hypothesis that urban sprawl could be designed for has had such a strong influence on the approach used to investigate and assemble this thesis project that the author leaves it to the reader to judge the semantics involved.

The goal of this study was the designing of urban growth not merely the planning for control of urban sprawl. Through the use of Crystal Lakes and its surrounding communities it is hoped that some insight into ways of achieving urban design can be increased for all concerned.

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Urban Sprawl
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I. Introduction to Urban Sprawl

What is sprawl?

What exactly is meant by urban sprawl? Those who have in some way specialized in urban studies know well what they mean when they use the term. They also know it has been used to mean a great many different things in recent years. The freedom with which it has been used emphasizes the attention this phenomenon attracts on one hand, but also the vagueness about it on the other hand. This vagueness has caused some confusion when trying to define the precise significance of urban sprawl.

Sprawling would indicate a pattern of movement and of use of space. It also suggests a certain freedom of movement within a broad framework. Last, but not least, today's metropolitan growth suggests something that does not agree with traditional or acceptable behavior of desired urban expansion. Applied to the modern urban phenomenon, sprawl has had such widespread adoption that it certainly expresses the feeling of a great many people about the present-day behavior of the city: it is taking too much space; and the results of all that free expansion is not beautiful. In the

layman's use of the term, urban sprawl, one finds a common negative connotation; it does not benefit cities to sprawl in such a fashion; it is not a likable situation.

In a country like the United States, so favorable to progress, to change, the present development of what is described as urban sprawl calls for some inquiry. Is this just a manifestation of old tradition or is it a reflection of conservative thinking? Or still, is it that the size and speed of recent urban expansion produces forms too quickly and are therefore less esthetically pleasing than their material benefits? Beyond spatial patterns perhaps today's urban phenomenon has achieved an all-pervading quality in modern life that it makes us feel strange and uneasy. Americans like some change and progress, but too much of it at a time causes apprehension.

All the factors indicated in the above questions seem to operate simultaneously and their cumulative effect builds into a general sense of frustration expressed in the desire to do away with urban sprawl. As Economist Benjamin Chinity, in his book Cities and Suburbs, said, "The frustration is that after all is said and done, the determination of land-use patterns remains largely in private hands."[1]

Major concerns

Several aspects of urban sprawl are of major conceern. First, there is concern about the decrease in land devoted to productive non-urban uses, principally agriculture. In North America where agricultural surpluses are a major problem, the urbanization of agricultural land causes little concern.

Second, there is the concern with spread of cities and its effect upon their internal structure. Fundamentally the internal sutucture affects the lives of those who work and live within the urban areas, and affects the ability to provide facilities and services over the ever-increasing expanses of land being developed at lower densities.

Third, there is concern about the form of the city. Specifically, the relationship of the urbanized areas to the declining amount of accessible open space. In any area with constantly moving boundaries, the non-urbanized open space is the reciprocal of the urbanized space, and as the latter increases, the former decreases.

What has caused sprawl?

What lies behind the rapid and accelerated growth of metropolitan area in the United States? Why is a

larger and larger proportion of the nation's growing population choosing to live and work within the confines of the metropolitan areas that cover a relatively small portion of the nation's total area? The answer lies partly in the changes in production patterns. Over the past century there have been drastic shifts in the kinds of goods which society wants and in the inputs which are required to produce them. But there have been shifts in consumption patterns as well, as more and more Americans achieve both the income with which to afford the good things in life and the leisure time in which to enjoy them. Many of the refinements of twentieth century living are most easily acquired--and often best enjoyed--in proximity to a large number of other people with similar tastes and demands. This push-pull effect of industry and consumer trends has done much to hasten urban sprawl. An example of this effect has been the steady drop in the extent to which people live directly off the land. These people in turn expand their increased wealth on higher quality goods and even more different types of consumption which can not be satisfied by only material products.

It is well known that today's urban areas have many inadequacies within their social, economic, governmental, and environmental makeup. In any event

the urban way of life is obviously preferred by many people to the older disappearing modes of life. This preference is understandable, for today's urban dwellers have higher incomes and purchasing power, more economic security, more leisure time, better medical care and other services, even better education.

While at first glance it seems illogical that less farm land will eliminate hunger it is a fact that productivity of farm land is increasing drastically around the world. In the United States, farm productivity is up 50 per cent from that of 1950, yet 34 million acres of farmland disappeared into cities. Also, during that same period, the United States is still experiencing surpluses in farm products.

City growth is going to keep on and on. It is a safe assumption to say that within 25 years from now there will be twice as many people on earth living urban modes of life than are now. The task ahead, therefore, is to double all existing urban facilities within 25 years. While the United States may not double its urban population within that period of time, its demanding population, with its increasing standard of living,

will probably increase material production in order to satisfy them. Thus the country may double its present production. These are trends that cannot be stopped or delayed barring some unforeseeable and still more awesome catastrophe.

The task ahead

The process to cope with future urban sprawl as seen by architects and planners, geographers and sociologists, businessmen and politicans is clear: Plan now for urban growth that will exceed all known bounds. Daily problems today are difficult enough to deal with; why consider the year 2000 or even 1980? The magnitude of the changes, distribution, and policies involved in doubling the existing urban areas within our lifetime calls for many specializations. One of these is the specialization in the spatial aspects of the changes involved, mainly land use and transportation. Unfortunately, planning cannot be restricted to narrow, well-defined fields of specialization.

II. The Control of Urban Sprawl

Planning

The major objections often heard about urban sprawl is that it is unruly, disorganized, wasteful of human values. The politican or government official is usually blamed for his inability or unwillingness to foresee and to provide for such plans and regulations that would make growth an orderly, harmonious process. Designers, planners and many inclined citizens sum it up in the expression: "lack of planning!"

For planning to be an effective control of urban sprawl we planners and designers must understand three major planning elements. These elements are: 1) planning itself; 2) zoning and subdivision regulations; 3) the role government plays at all levels. Economics and sociology are implicit in each of these major elements.

Broadly speaking, a city that plans for its future can develop as it wishes. Of course, the usual planning program and its tools cannot do much for an area that is losing population because of a decline in or loss of

its economic base, a situation faced by many cities and counties in rural and undeveloped areas. It has been said that "it would be extremely difficult to estimate the enormous waste and unnecessary private and public expense that poor planning or complete lack of planning has entailed."[2] This waste and other consequences of lack of foresight and planning by government officials are visible everywhere.

What is planning? One of the most complete definitions is this:

> City planning may be regarded as a means for systematically anticipating and achieving adjustment in the physical environment of a city consistent with social and economic trends and sound principles of civic design. It involves a continuing process of deriving, organizing, and presenting a broad and comprehensive program for urban development and renewal. It is designed to fulfill local objectives of social, economic, and physical well-being, considering both immediate needs and those of the foreseeable future. It examines the economic basis for an urban center existing in the first place; it investigates its cultural, political, economic, and physical characteristics both as an independent entity and as a component of a whole cluster of urban centers in a given region; and it attempts to design a physical environment which brings these elements into the soundest and most harmonious plan for the development and renewal of the urban areas as a whole.[3]

It must be recognized, however, that even planners do not agree exactly on a definition for planning. The discipline is too new, and agreement may not be reached any time soon, if ever. However, working definitions are possible and useful. It might be said that urban planning is the

accommodation of the various interests seeking expression in the local scene to the interest of the entire community as a social unit. Planning is an art and a science which deals with land use in terms of economic betterment and social progress.[4]

Planning deals with all aspects of the physical, economic, and social development of the city. In the past, planning has been understood as a means of dealing with physical development primarily, but newer approaches recognize that planning is definitely more than physical planning. It is concerned with streets, utilities, airports, parks, and parking, of course, but it is also concerned with slum clearance and rehabilitation, housing for the elderly, schools, playgrounds, open space, public health, and capital budgets, all of which focus on human resources. Many of these activities also involve the regulation of private property in order to achieve community goals.

Planning is "essentially a process of understanding human needs and of influencing and shaping future public policy to serve those needs most effectively."[5] Planning, on the basis of professional assessments and community values, aims to correct and/or minimize the effects of past mistakes and to avoid them in future developments.[6]

The concept of planning is not new. There was planning in Palestine thirteen hundred years before Christ. Aristotle, writing in the fourth century B.C., said, "ingenuity must be applied in planning cities to gain maximum advantage of site conditions."[7]

Planning was occasionally applied in the United States in early years: for example, William Penn laid out the city of Philadelphia on a grid pattern in 1682.[8] While it might be said that systematic planning in the United States dates from William Penn in 1682, in reality most American cities had a chaotic, unplanned growth until the mid-twentieth century. The few examples cited are forerunners of planning as we know it today. In rural areas Americans were even less concerned with planning than their urban fellows, at least until the coming of the automobile and the telephone which made possible the ribbon developments along arterial highways.[9]

According to some students of the urban scene, city planning has been generally accepted by the people of the United States:

> Increased mobility of people and products, a growing population and increased concentration in urban areas, rising standards of living, the increased interdependence of communities as well as individuals, a shorter work week, increased leisure time and various social trends, changing technology, the demand

> for the preservation of various natural resources--these and a host of other modern-day factors have caused a nationwide interest in community and area planning during the past few decades. Traditionally, planning, primarily zoning, was motivated largely to protect the public health and comfort...More recently, it has become apparent that planning has a very broad impact on the total development of a community or region and in the furtherance of various public policies.[10]

However, some practitioners of planning argue that planning has not been generally accepted. Some people are interested in planning and some pay planning a degree of lip-service; but acceptance is uncertain even towns and regions which have planning programs. Almost any public hearing on a proposed zoning ordinance could verify this point. People usually do not accept planning until they see some tangible proof of the material gains to be derived from planning, and planners and local officials are not allowed the tools to make such demonstrations. The answer is perseverance on the part of the planners in improving their methods and patience in educating the public--a long, grinding process--to the benefits that can be derived from proper planning.

The city or metropolitan planning process is, explicitly or implicitly, brought under rather heavy citicism at several points. The nominal planners are often not the real planners. Sewer builders, transportation agencies, tax assessors, and other units of government often

usurp the role assigned to the planning agency. There is often a serious communication gap between the planners and the general public, and among them and the other officials in government. Frequently, plans are developed by the planners and then their official and public acceptance sought; rarely are plans developed cooperatively. Perhaps the most serious criticism is that city planning has been too concerned with a goal or a future plan and too little concerned with the processes of growth, change and implementation. One need only observe the fault line created by a rezoning process; instead of a neat shift from one classification to another in response to accepted processes and standards, frequently a major controversy develops and absorbs much time and energy.[11]

Whether generally accepted or not, planning is the "conscious and deliberate guidance" of the community's thinking so that the goals the community can agree upon can be attained.[12] Planning is a basic and fundamental approach to the problems that confront urban areas. Planning is a point of view, an attitude, an approach, an assumption that we can anticipate, predict, and control our own urban destiny.[13]

The objective of planning is to promote the welfare of the community by "helping to create an increasingly better, more healthful, convenient, efficient and attractive environment."[14] How is this goal achieved? By working out and implementing a comprehensive plan for the total metropolitan area.

Zoning

Zoning is one of the major tools of plan implementation. The purpose of zoning is to distinguish various kinds of land use and to allot sufficient area for each. Zoning is vital because it separates various uses into definite zones, in order to protect each category of use. Zoning is:

> the governmental regulation of the uses of land and buildings according to districts or zones. It is a means of insuring that land uses within the community are properly situated in relation to one another, that adequate space is available for various types of developments, and that the density of development in each area is held at a level which can be properly served by governmental facilities and will permit light, air, and privacy for persons living and working within the community.[15]

To accomplish its purpose, a city can zone with regard to land use, lot area, population density, size of all yards and open spaces, building set-backs, parking areas, signs, and billboards; it can prohibit some uses and eliminate (through amortization) some existing uses.

Zoning can control industrial and commercial noises, fumes, smoke and particle emissions, and even erection of structures in the air-space approaches to airports.[16] Zoning has become a complex tool; new approaches and techniques are being developed all the time to meet new needs emerging in a complex society.

Planning and zoning are often misunderstood, and many times the words are used interchangeably. The distinction between planning and zoning is a most important one, and it should be clearly understood. A leading court decision states that zoning:

> is a separation of the municipality into districts, and the regulation of buildings and structures in the districts so created, in accordance with their construction and the nature and extent of their use...it is the dedication of the districts delimited to particular uses designed to subserve the general welfare. It pertains not only to use but to the structural and architectural design of buildings.[17]

Planning, as opposed to zoning, "is a term of broader significance. It connotes a systematic development contrived to promote the common interest in matters that have from the earliest times been considered as embraced within the police power."[18] Planning is conceptual. It is concerned with systematic development of a municipality along lines determined by the people in the common interest. Zoning is implementive. It is concerned exclusively with land use regulation, aiming at the most effective utilization of land.[19]

Zoning has been known as a "preventive" device, intended to determine community blight and deterioration by prescribing standards for uses in separate areas and by assisting in the control of new buildings. It requires similar uses in given areas and thereby helps to keep out blighting factors and to keep up property values in all areas. It must be pointed out here that this concept is changing somewhat, though not rapidly. Some courts are now more prone than ever before to allow zoning for the future rather than to limit its use to prevention.

However, zoning, as it has operated to date, is a tool of social control over land use that is too weak to be effective in the growing metropolitan areas. Zoning never insures that the best will be done--it only prevents the worst from sometimes occuring. In older developed urban areas, pressures for zoning changes are largely offset by counter-pressures to retain the status quo. The results may be good or bad, depending upon one's viewpoint, but a rather high degree of stability in zoning and in land use results and intruding non-conforming land uses are largely kept out. In the developing suburbs, the political situation is different, and zoning has proven largely ineffective. Where land is yet to be developed, land use zones, based upon a

general plan or on some other grounds, have generally had little popular support when initially adopted or when changes are proposed. Such zoning may even have had negative results; it may be easier and cheaper to break the existing zoning than to conform to it. Zoning, as a legal expression of a general plan, is essential for growing suburbs but it is unlikely to be effective unless complemented by other measures of control.[20]

Of all the land use control devices available, the potential of subdivision regulation is probably the greatest. One experienced planner has this to say about its value:

> In the process of exercising this planning implement (zoning) in the public interest, municipal authorities are prone to overlook a planning tool capable of greater accomplishments with far less efforts. The process of subdivision control is a powerful and effective device for achieving a desirable community environment and all communities both large and small would do well to examine their position in this regard. If they are now exercising subdivision control, the process should be reviewed for maximum effectiveness. For those communities that have not adopted this device, it is highly recommended because nothing is more fundamental to the proper growth of the community.[21]

Again, the same planner says that "when compared with zoning, a well-administered subdivision control is more useful in achieving planning goals and its influence is far more lasting."[22]

Subdivision regulations

Subdivision regulation is the control by a public authority of the plotting and conversion of raw land into building lots. A city can control the subdivision of real estate by forcing the developer to meet requirements and standards established by the city in return for the privilege of recording a plot and selling off lots. The cumulative effect of land subdivision is so extensive that public control of this activity is required. The impact of unregulated subdivision of land is felt in tax burdens, the high cost of extending utilities, street and traffic problems, overloaded schools, health hazards caused by sewage disposal systems unsuited to a particular area, and so on.

Subdivision regulation is crucial, because once large tracts of land are broken up into individual parcels, the pattern of development is irretrievably set.[23] Thus a subdivider is taking action that is of tremendous importance to the community--to the homeowner, to the governing body, and to the general public, the taxpayers. It is through subdivision regulations that the community interest may be expressed--and protected.

Subdivision control plays a fundamental role in the development of a community because "although a city is

something more than a total of its land subdivisions, much of the form and character of the city will be determined by the quality of these subdivisions and the standards which are built into them."[24]

The subdivision of land is clearly the first step in building communities:

> Once land has been cut up into streets, blocks and lots, and publicly recorded, the die is cast and the pattern is difficult to change. For generations the people who occupy such land will be influenced by the character of its design.[25]

A well-known scholar in urban affairs underscores the opportunity offered municipalities by subdivision control:

> When vacant lands are improved, the municipality has its best and sometimes its only opportunity to obtain the pattern of land development with which it must live in the future. The amount of money which many cities are compelled to spend annually for street widening, redesign, relocation of utility lines, slum clearance, and redevelopment is grim evidence of the cost of failure to develop vacant property in a proper manner.[26]

Perhaps it seems odd that the influence of subdivisions on the community is not more widely recognized. The lack of recognition is due in part to the nature of the subdivision process. It occurs largely on paper, and the quality or lack of quality in the land involved is not obvious to the public.[27] It is also quite true that rather loud and long objection by real estate speculators to public control of the subdivision process has tended to hamper and delay the public acceptance of this planning device.

Governments' roles

The agencies of federal, state, county, and city government play a very important role in urban expansion into the rural countryside. The immense diversity among government agencies was dramatized a few years ago by a book about the New York metropolitan region with the expressive title 1400 Governments. There were literally more than 1400 separate units of government in this metropolitan region, "each having its own power to raise and spend the public treasure, and each operating in a jurisdiction determined more by chance than design."[28] Moreover, most of these governmental units had several agencies concerned with one aspect or another of suburban growth. Under these circumstances, obviously, no unit of government has the power or can take the responsibility for guiding urban growth, even on the public, as contrasted with the private land use decisions.

The federal government exercises a number of important responsibilities that affect urban impact on the rural countryside. Part of its influence is general or indirect, in the sense of affecting all urban and suburban areas to one degree or another. For the past generation, the federal government has had programs that affect the overall supply of housing--programs to stimulate a high

level of economic activity and employment and a reasonable stability of the general price level, programs to make credit readily available for mortgages.

But some federal programs apply directly to specific tracts of land--urban renewal, public housing, housing for military and defense workers, housing programs for the elderly, and others that are localized to particular areas. Some of these have been direct federal activities, such as building housing for military; others have operated through various loan, grant, and guarantee programs which have offered special incentives to private firms and to local government. The effect of the federal programs as a whole has been to stimulate suburban expansion in several indirect but effective ways. "Defense activities, aid to highways, and other federal programs have affected urban growth greatly."[29]

"The states have generally played a less important role than the federal government in suburban growth."[30] The state's primary role has been to provide enabling legislation for local governments. To a considerable degree, this role has been a negative one; that is, legislatures have refused to enact measures which would have better equipped local governments to deal with the wave of postwar urbanization. It has repeatedly been pointed out that

the states are, to a degree, anti-city in their actions if not in their philosophy. Until recent years, most state legislatures were heavily dominated by rural representatives, men who were often unsympathetic to the needs of the cities and unwilling to provide authority or funds for cities. During the depression years of the 1930's, the cities increasingly looked to the federal government rather than to the states for help; and this trend has continued, at least to some degree, in the postwar period.

Nevertheless, states do have some programs which do or could have major effects on urban extension into rural countryside. States provide, with federal financial aid, the major highways leading into the larger cities, as well as those connecting them. Location and capacity of highways obviously affect the direction and rate of spread of suburban areas. States exercise public health powers; if these had been, or were now, stringently applied they would markedly affect many suburban areas which have been or are dependent upon septic tanks for sewage disposal. States have open space programs which have often included local parks. Many states help to fund local schools, and there have been grants for other purposes. These various programs have aided suburbs, but perhaps not more than the older cities.

In some metropolitan areas--New York, for example--there are various forms of regional government. While the development of all-purpose metropolitan government has not gone very far, metropolitan government for special services is becoming fairly common. Water supply is often a regional function; sewage may be. Parks, especially the larger ones, are sometimes under metropolitan regional authority. Certain public works, such as bridges or tunnels between cities, may be regional in organization and operation. In an increasing number of metropolitan areas, data collection and analysis and planning are conducted at the regional level. In recent years, councils of governments have been established in several metropolitan areas, typically including all the cities and counties within the metropolitan area. Their role is consultative and advisory. The councils are often concerned with gathering data and planning for the entire area, but they usually lack statutory power to compel conformity to their plans. These programs, like the federal ones, tend to apply to a whole metropolitan area, rather than specifically to the suburbs.

The cities and the counties have had the greatest impact upon the direction and rate of suburban growth, in ways that have greatly influenced, if not determined, which specific tracts would be used, for what, and when.

Cities and counties should be considered together here, for to a considerable extent they operate as substitutes for one another. When the boundaries of a city are so far flung that suburban-type development can take place within its legal boundaries, then it is the city which exercises power over residential growth. More commonly, the suburban growth takes place in unincorporated areas outside of any city (in the legal sense) and the legal powers and actions of the county as a unit of government are determinative.

A very large number of local governments exercise various powers with respect to planning, zoning, subdivision regulation, housing codes, and other aspects of urban and suburban development. These functions may be exercised by part-time boards of citizens, as well as by official units of government. Most of these local governments are small--too small in most instances to engage any full time employees for any of these functions. Those which do hire usually pay low wages. Only the largest of the local governments have top-ranking jobs that pay enough to attract and hold well-trained professional or technical people.

"Cities and counties exercise their planning, zoning, subdivision, building code, housing code, and similar

activities under the broad concept of police power--the power to regulate individual activity in the interest of the safety, health, morals, and general well-being of the whole population."[31] Courts have generally upheld exercise of such powers when the purposes to be served were reasonably clear, the means to the end reasonably defined and relevant, and the procedures in accordance with due process. At the same time, courts have been unwilling to deprive property owners of all rights to the use of their land in the name of such general public purposes.

III. Summary and Conclusions

In the opinion of this writer today's planners are far more successful in getting the confidence of governing officials and the public in present efforts at region planning than we deserve; in view of the limited techniques, capabilities and understandings we have developed to deal with metropolitan problems. I fear that in the near future we can only disappoint the confidence placed in our work. We must nevertheless dare to cope with severe metropolitan problems like urban sprawl, despite the limited powers we have at present to analyze, to design and to conceive the wise measures necessary for tomorrow's urban life.

What then must we achieve next to rise to our new opportunities? First of all, we have yet to understand the essence and direction of modern urban society and how it is to function. We must achieve a new urban/suburban philosophy--a real understanding of the meaning of human life in the conditions of modern metropolis and modern megalopolis. Without a clearer understanding of how the urban community works, it seems impossible to think that we are going to deal successfully with how it ought to work in the future. Second, we face the task of developing alternative visions of how to give expressive spatial form to the future qualities of life in the metropolis. Third, we have the problem of designing specific public measures capable of achieving the chosen directions of urban change. The question is how to get from here to there--a question of tremendous importance.

NOTES

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11. Clawson, Suburban Land Conversion in the United States, p. 91 (1971)
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13. Adrian, op. cit., p. 457
14. International City Managers Association, op. cit., p. 10
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18. Yokley, op. cit., p. 12
19. McQuillin, op. cit., p. 12
20. Clawson, "Why Not Sell Zoning and Reqoning," p. 4 (1967)
21. Yearwood, op. cit., p. 20

22. Ibid.

23. Bair, Bair Facts, pp. 46-48

24. American Society of Civil Engineers, Land Subdivision, (No. 16, 1946)

25. Ibid.

26. Webster. op. cit., p. 436

27. Yearwood, op. cit., p. 21

28. Wood, Almendinger, 1400 Governments, p. 1 (1961)

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SECTION II

NORTHEAST DAYTON REGIONAL STUDY

Northeast Dayton Regional Study
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II. Northeast Dayton Regional Study

The following part of this study is a compilation of the information and available data on urban growth and land use pressures found in the Northeast Dayton Region. This second stage will serve as a verbal site analysis of existing conditions. Such a study delineates the complex problems of planning and designing for specific site development in the region.

In order to help us understand the region and Crystal Lakes Area it is important that regional conditions be listed and understood. Important regional conditions to be considered are:

1. Units of Government
2. Transportation
3. Land Use Patterns
4. Environmental Data

It is important to remember that this section is merely a computation of information from which analysis and data can be discussed in the following sections.

1. Units of Governement

The various levels of regional government in conjunction with their planning and policy agencies are presently uncoordinated in their efforts.[1] A break down of government involvement and how they are participating in urban growth of the study area is as follows:

Federal Government

involvement--fiscal, policy, development

areas--transportation (highway and mass transit development)

--public services (Utilities development, sewer and water)

--urban renewal (Increased housing demands)

State Government

involvement--fiscal, policy, planning, development

areas--transportation financing (Highway development)

--public services (Sewer and water availability)

--urban planning (Proposed development and policy)

--tax assessment (Land use economics)

--policing (Enforcement of land use regulations)

County Governments

involvement--fiscal, policy, planning, development

enforcement of police powers

areas--transportation financing (Roads and highway development)

--public services (Placement of utilities)

--urban planning (Policy and development proposals)

--development regulations (Zoning and subdivision regulation)

--tax assessment (Land use economics)

--policing (Enforcement of land use regulation)

Semi-public agencies

involvement--land use of property controlled

areas--flood control (Miami Conservancy District)

--recreation (Miami Conservancy District)

--beautification(Miami Conservancy District)

A major problem found at all levels of government is the lack of coordination in inter-regional planning.[2] The planning and policy decisions concerning such areas as transportation and public service improvements do not relate to the plans and goals of the adjoining planning areas or political heirarchies. Planned improvements are counteracting and conflicting, as often as not, with the physical environment and control of urban problems. The crux of the problem lies in the fact that planning agencies' works reflect only upon and within the political zone which these agencies serve.[3]

The outstanding examples of uncoordinated land use development and proposals in the region under study are:

1. Urban-suburban (Land use proposals)
2. Open space systems (Open space proposals)
3. Highway development (Routes 4 and 675 development)
4. Public services (Sewer and water development)
5. Land use patterns (Proposed growth)
6. Land use regulations (Zoning and subdivisions regulations

The proposed growth and development plans for residential and open space for the region conflict at the political boundary edges. Once past the land use conflicts along political boundaries there develop numerous differences in land use planning. Counties accept proposed highways from the state but do not necessarily fit them into their proposed land use plans. The development of the 675 Freeway north of Interstate 70 is a good example of conflicting proposed land use. In this writer's opinion the necessity of such a freeway is questionable and its development will in all probability cause: 1. greater residential development, 2. increased commercial development, 3. environmental problems (water, air, physical (visual, noise)). Present land use and land use regulations, as well as planning, cannot control such regional development pressures.[4]

In a recent study the Miami Valley Regional Planning Commission came to the following conclusions.[5] Residential land absorption rate for the outer urban areas surrounding Dayton would remain the same in the year 2000 as the absorption rate did to 1970. Data indicated vacant or agricultural land will decrease 50% while there is only a general indication that the rate of absorbed land for commercial, industrial, and open space will increase from 1970 up to the year 2000.

The following tables show the present and projected growth as tabulated by the Miami Regional Planning Commission for the outer urban areas of Dayton which exceed a population of 2500.

TABLE 1

1970 LAND USE DISTRIBUTION and LAND ABSORPTION RATES FOR OUTER URBAN AREAS[6]
(Combined Totals)

Land Use Type	Acreage Distribution	Percent Distribution	Land Absorption Rate Per 1,000 Persons*
Residentail	9455	48%	85
Commercial	746	4%	7
Industrial	990	5%	9
Institutional	400	2%	4
Open Space	2206	11%	20
Vacant-Agricultural	6037	30%	55
Total	19834	100%	180

*Based on population figures reported in the 1970 Census totaling 110,424.

TABLE 2

PROJECTED LAND USE DISTRIBUTION and ABSORPTION RATES FOR GROWTH of OUTER URBAN AREAS[7]
Between 1970 and 2000

Land Use Category	Percent Distribution	Land Absorption Rate Per 1,000 Persons Actual
Residential	52%	85
Commercial	6%	10
Industrial	7%	12
Institutional	3%	5
Open Space	17%	28
Vacant-Agricultural	15%	25
Total	100%	165

2. Transportation

The major element in the development of urban growth in the Northeast Dayton Region has been the planning and development for vehicular circulation. Transportation planning occurs at all levels of government and this transition in planning is reflected in the planned urban growth for the region.[8] The existing vehicular transportation system is composed of the following:

Freeway Penetrators

Interstate 70

Interstate 40

Route 4 Expressway

Major Thoroughfares

State Route 235

State Route 69

State Route 444

State Route 201

Dayton-Springfield Road

Harshman Road

The major vehicular arteries of the region are Interstate 70 and the Route 4 Expressway. These two systems combine to connect Dayton and Springfield. The importance of Route 4 Expressway is increased due to the overwhelming majority of the population being employed in the Dayton area.[9]

Major thoroughfares are mainly related to older circulation systems that have been replaced by freeway penetrators. Such thoroughfares are of great importance since urban growth is taking place around the peripheries.

Until the outlying urban-suburban areas develop their own employment infrastructure, there will continue to be a substantial amount of commuting to the larger employment centers, producing a complex pattern of home-to-work freeway loads.[10] "Peak-hour demand for access to the central area of Dayton will probably not increase substantially in the foreseeable future, but demand for intra-regional highway facilities will continue to grow."[11] Present highway planning and construction for the region is continuing along this basic premise.

3. Land Use Patterns

The following land use information is based on present and predicted growth patterns within the region. The literature and interviews with area planners have confirmed my belief that today's planning is aimed at control of urban growth and not at the designing for urban growth. Present regional conditions, politically and socially, leave planning and designing in a position of not having control of their product.

The following is the author's summary of facts and trends for various regional conditions:

--Proposed new town development by Huber Corporation to begin within four years

--Proposed 675 Freeway around East Dayton corridor to be completed in two years

--Sporadic urban growth is presently increasing in intensity in Southwest Clark County and Northeast Green County

--Springfield is growing to the north and east

--Springfield's urban growth is presently not a major factor in the study area

--Dayton is a major source of urban growth pressures in the region

--Dayton's present major urban growth is to the northeast and southwest

--Dayton's urban growth is fast engulfing the space between Route 4 and Interstate 70 North

--Projected growth is mainly based on proposed transportation and public services yet to be developed

--Crystal Lakes Study Area has seen little growth itself but has felt strongly the effects of development along its edges.

The following data helps illustrate the future growth facing the Dayton Area. The source of this information is the Homer Hoyt Institute, Washington D.C., December of 1968. Regrettably no recent studies of the Springfield area offer comparable data.

TABLE 3

ANNUAL GROWTH IN NUMBER OF HOUSEHOLDS 1968-78
IN SELECTED U.S. METROPOLITAN AREAS WITH LESS THAN
1,000,000 POPULATION ON JANUARY 1, 1968 [12]

Standard Metro. Area	Estimated Jan. 1, 1968 Population	Households	Annual Growth Households	Total Household Increase 1968-73	1968-78
Dayton, O.	832,000	242,000	6,000	30,000	60,000

(1)

TABLE 4

POPULATION STANDARD
METROPOLITAN AREA, URBANIZED AREA, CENTRAL CITY, URBAN FRINGE
BALANCE STANDARD METROPOLITAN AREA 1960
METROPOLITAN AREAS 500,000 - 999,000 POPULATION [13]

Standard Metro. Area	Total Metro. Area	Urbanized Area	Central City	Urban Fringe	Balance Metro. Area
Dayton, O.	694,629	501,664	262,332	239,332	142,965

(2)

TABLE 5

POPULATION DENSITIES
CENTRAL CITY, URBAN FRINGE,
BALANCE STANDARD METROPOLITAN AREA 1960
FOR
METROPOLITAN AREAS WITH POPULATION 500,000 - 999,999 [14]

Standard Metro. Area	Land Area (Square Miles) Metro. Area	Central City	Urban Fringe	Balance Metro. Area	Density Per Square Mile Central City	Urban Fringe	Balance Metro. Area
Dayton, O.	1,388	33.6	90.9	1.164	7,808	2,633	166

TABLE 6

POPULATION, LAND AREA, URBANIZED AREAS

UNITED STATES WITH POPULATION 975,000 & OVER, YEAR 2000

DAYTON-MIDDLETOWN METROPOLITAN AREA [15]

Population (Thousands)			Met. Area	Urbanized Land Area Sq. Miles			Increase Land Area Sq. Miles		Met. Area
1960	1980	2000	1960	1960	1980	2000	1960 -1980	1960 -2000	2000 Sq. Miles
501	876	1,496	1,288	125	241	428	116	303	860

(4)

IV. Environmental Data

The impact of urban growth on the region's environment can be seen clearly in such factors as:

1. Valley Ridges
2. Major Drainage
3. Open Space
4. Unique Environmental Zones
5. Dayton Water Supply

The Valley Ridges are being developed and are in turn weakening the visual quality of this natural river valley. Drainage is important in that flooding, sewer development and availability of water are influenced by one river. Open space, once abundant, is diminishing with higher density of housing. Proposed development also threatens unique environmental zones that are rare and irreplaceable to the region. Dayton's water supply can be considered threatened since urban growth could pollute its source in the future.

1. Valley Ridges

Topographically the region can be described as a series of broad river valleys, jointly referred to as the Miami Valley. The valley ridges, gradual in nature, increase in elevation to as much as 250 feet above the flood plain.

The region's geographical history is heavily influenced by glacier activity and the entire region can generally be considered a large moraine.

The impact of these valley ridges are for the most part strictly visual and proportionate to their heights. A small amount of residental development has taken place along the ridge lines already. This existing housing development reinforces the proportional relationship between visual impact and the height of the ridge line by simple observation. It might be possible to justify preservation of these valley walls for visual quality or ethetics. The only real existing restrictions to prevent development is the airport zoning of certain areas limiting height and density of housing. Of course, to date, the economic limitations of large scale development on steep slopes has been the major factor.

2. Major Drainage

Mad River drains 90% of the study region. The river is relatively small, as compared to the size of its watershed, and is known for its spring flooding. During the past century this river has had several major floods. The present city of Fairborn came into being after the communities of Fairfield and Osborn were destroyed by the river's flooding. Mad River was once considered the best trout fishing river in Ohio, but now is polluted by the cities and industry of Springfield and Urbana, Ohio.

In the study area the river and its surrounding flood plain are under the control of the Miami Conservancy District. The region's high water area is controlled by the Miami Conservancy District but gaps do exist in land use and flood control in the study area. Agriculture has been developed within the flood plain, as this bottom land is fertile and well drained. Availability of underground water is highest in the river zone, with ratings of 500-1000 gallons per minute or more.

3. Open Space

The Northeast Dayton Region is dependent, for the most part, upon the Miami Conservancy District to furnish permanent open space.[16] Existing farm land, natural areas and flood plain while presently furnishing open space are diminishing each year and are unreliable sources for future open space. There are several parks in the region but their location or size makes them inconsequent to the study area of Crystal Lakes.

As stated, at present the only reliable open space is provided by the Miami Conservancy District. This conservancy district is unique in that:

A. It is a private entity answerable only to its own board of directors.

B. It is self financed by past public contributions from the first decade of this century.

C. It has solely built and maintained five large dams and impoundments for flood control purposes.

D. It has purchased development rights from property owners along the flood plain to enhance its control.

E. It maintains its own public parks system.

Due to the broad flood plain in many areas a large amount of open space still exists. There are several small areas that have been designed as park land and open space, but no real control is presently guaranteeing its preservation. These small open spaces were proposed not because of a designed intent to develop open space but because of severe development problems. The severeness of development varies in these areas and should even medium development occur, the open space would be greatly diminished in its effect.

4. Unique Environmental Zones

The region around the study area possesses several rare and unique environments. These areas are:

A. Medway swamplands

B. The peat bogs

Both areas are outstanding in their quality and unusual physical environments regionally. An article in the Dayton Daily News describes the Medway swamplands as a rare landscape in the whole southwestern Ohio region. The peat bogs between Medway and Crystal Lakes are unique due to the fact that they lie in the heart of a glacial moraine. These bogs have also produced at least one mastodon that is presently housed in the anthropology building at Ohio State University.

Medway, Ohio is fortunate to have a swamp. "This particular landscape is rare in southwestern Ohio, but has escaped the pressing tide of civilization. One of its major properties is the stablized water table, others are its passive recreation and diversity of wild life."[17] If present highway development plans are executed this swampland will be totally destroyed.

Between Crystal Lakes and Medway are a series of peat boggs and accompanying wet land areas. Their importance goes beyond their anthropological and geological uniqueness. The development of roads and housing away from their area has given the residents of the local communities their only option for open space preservation.

It might also be mentioned that the lakes in the study area are unusual in that they are among just a few natural lakes in the region. These lakes are also all spring fed and possess no real water shed

of their own. A property owners' association controls these lakes. Since the Crystal Lakes Property Owners Association is so exclusive in its land use and very limited in its financing and organization, it relates physically but not socially to the region.

The preceding discussion on valley ridges and major drainage more than justifies their being defined as unique environments. These two major physical elements define the visual framework of the study area and as environments are capable of being molested.

5. Dayton water supply

The city of Dayton is the only city with a population of over 200,000 which has wells as its sole source of water.[18] Deep wells draw water from an enormous underground water supply trapped in the moraine beneath Mad River. The source of a great deal of the water feeding this moraine enters at the region under study.

Dayton's water supply is basically a southern extention of the major drainage system of the study area. Urban growth could conceivably develop to an extent that by tapping underground water supplies and the addition of poultants to the water shed have drastic effects on Dayton's future development.

It is interesting to note that no controls or coordination in planning or governmental policy have taken into consideration the preservation of this water source.

V. Planning Data

There are four counties and separate governmental units found in the study area. The political boundaries of these counties come together just south of the Crystal Lakes area causing the planning of adjacent land uses to be at the very least, difficult.

The counties of Miami, Montgomery, and Greene have formed a joint planning region called the Miami Valley Regional Planning Commission. Clark County, the study area's governmental unit, has its own "Springfield-Clark County Regional Planning Commission." Admittedly the consolidation of the three counties into one planning unit has facilitated more uniform planning efforts, however, the acceptance, development, and enforcement by the county governments is so unpredictable it negates many of the advantages.[19]

Land use, while varying with governmental actions, is also troubled by variations between planning agencies.[20] Such major planning elements as proposed residential, industrial, and open space are conflicting to one another when comparing proposals from these two neighboring planning agencies. Simply stated there

is no coordinated effort between planners or government to insure uniform land uses for the region and adjacent political boundaries.

All the aforementioned problems can be, in part, blamed upon the local citizenry. Springfield-Clark County Regional Planning Commission can do little to enforce zoning when the four adjacent townships in southwest Clark County had turned it down for many years. The people of the area are then responsible for land unzoned directly adjacent to zoned lands.

There are two exceptions in which planning efforts have been formulated to transcend the political and planning areas. The two exceptions are airport zoning and flood plan control. Both of these exceptions are the result of economic catastrophies to the local governments involved. Perhaps a catastrophic problem in transportation or public service must exist before inter-regional planning and development can occur within the study area.

An outstanding private or semi-public group controls land use within the study area. The Miami Conservatory District is a publicly funded agency responsible for flood control in the Miami Valley. This agency has no ties to any governmental unit and

sets policy for land use within its boundaries. Much of the success of the Miami Conservation District is due to its financing and simplistic organization.

The second region planning effort that deals with overlapping of governmental boundaries is the Wright-Patterson Air Force Base Airport zoning.

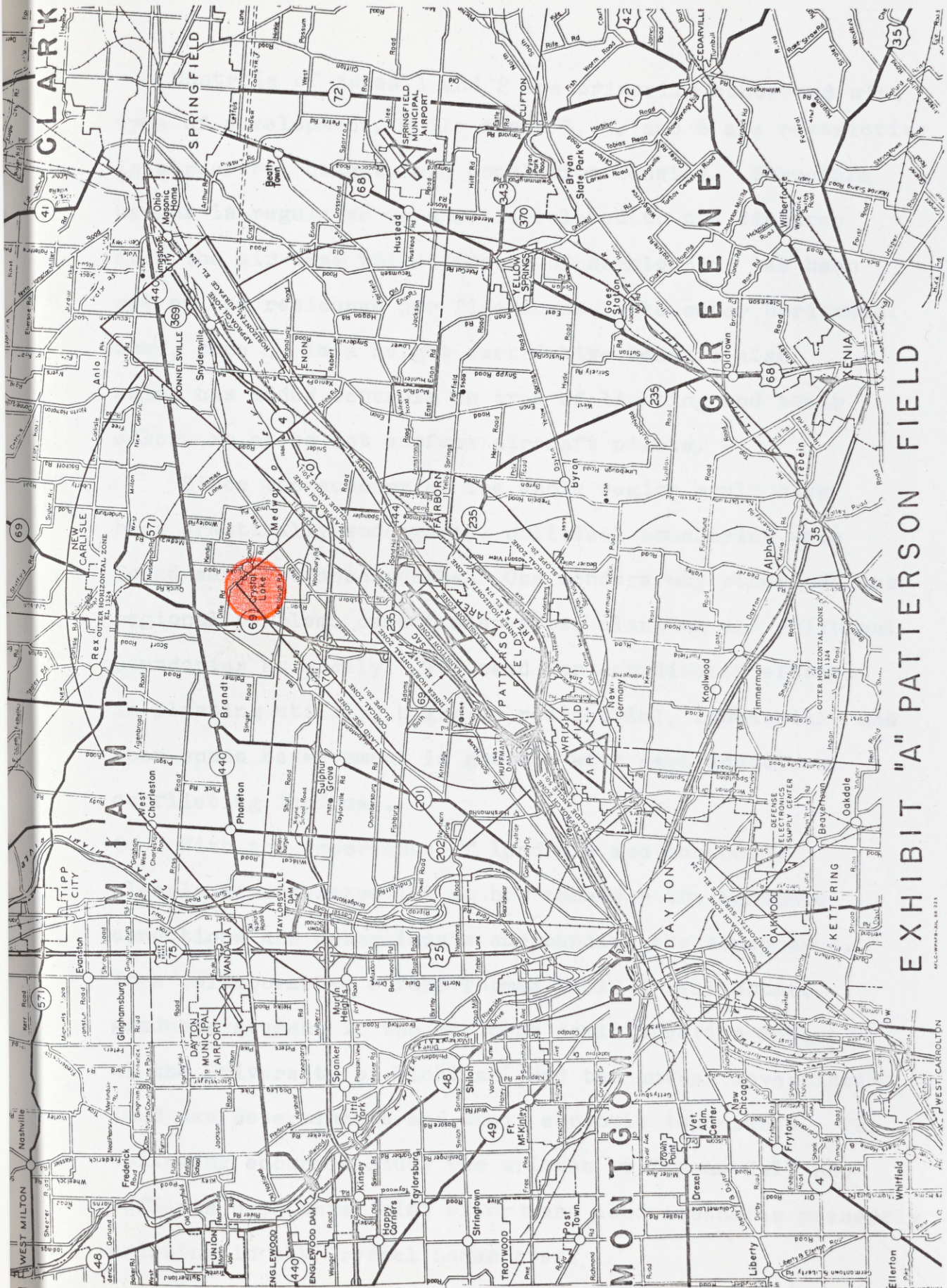
Zoning was developed after the United States Air Force threatened to pull out of the region if its air approaches were sealed off by urban development. Wright Field air strip to the south of the main base had to be shut down after urban growth overran its landing patterns and approaches. With 25% of the employment for the region located in or supportive to this military installation you find this airport zoning code strongly worded to protect its economic existance.

Wright-Patterson Air Force Base Airport Zoning is made up of six zones. These zones are:

1. inner horizontal zone
2. conical zone
3. land use zone
4. outer horizontal zone
5. approach zone 1
6. approach zone 2

FIGURE 1

WRIGHT PATTERSON AIR FORCE BASE AIRPORT ZONING



Taken from Wright Patterson Air Force Base Airport Zoning Regulation

Controls of zones 1 and 2 are primarily concerned with type of development, while zones 3, 5, and 6 are restrictive in structure, height, and population density. Structure height is regulated on a ratio related to the distance from the air base while density of development has been set at one residence per five acres. The outer horizontal zone, zone 4, is a height restrictive measure also which has added controls on type of lighting and their colors so as to not confuse aircraft pilots.

Since the economy of the whole region would have been drastically endangered, political boundaries were found easily transcendable. One wonders why other obvious regional problems cannot also cross planning and political boundaries as easily. The need for coordinated efforts in planning utility, highway, residential, industrial, and open space development is growing with each additional conflicting land use.

With the importance of land use and economics clearly demonstrated let us now consider the economic conditions and determinants surrounding the study area. In a collaborative effort Thomas Hall, a real estate graduate student in the Business Administration School at the University of Michigan, and the author investigated land use determinants and their economic importance. The following economic study was written by Thomas Hall and reflects upon this joint effort and land economics presently existing in the Crystal Lakes Area.

VI. Economic Study — Thomas Hall*

Both the use to which any resource is put, and its value, are determined in a free economy by the forces of supply and demand. Land is no different from any other resource in this respect. Quite often, the fact that land is of a fixed amount is singled out as a violation of normal supply conditions. In fact, however, this is not a relevant point, since all resources, whether the number of hours that a man can work, or the number of machines that ultimately can be produced, are of a finite quantity. The relevant issue is whether, within a limited time span and limited area, more land will be supplied for a specific purpose, if the price offered increases. The answer is unquestionably "yes." For example, one might wish to measure the amount of land that will be supplied for apartment house construction. This amount will be directly related to the price that is offered for land with that use in mind. At a given price, one could conceivably exhaust all available land. However, a substantial increase in the price offered may now make it profitable for an owner of

*Graduate student of Business Administration (real estate), University of Michigan.

swampland or mountain land to incur the necessary development expenditure to put the land into condition for apartment house construction. Hence, an increase in the price offered will result in an increase in the "supply" of land for a particular purpose. Similarly, one need only observe the steady increase in land prices to see how rising population and incomes have acted to increase demand for all types of land.

Recognition of the importance of supply and demand in determining both land use and land value is exceedingly important for the planner. With this point in mind, let us move on to the specific situation of the Crystal Lakes Study Area.

Land use in the study area is relatively diverse. At present, the two primary uses are single family residential development and raw farm land. Initial development, however, occurred prior to existing zoning and regulatory ordinances, such that commercial and residential uses are not clearly separated. Hence, small retail businesses are located among residential homes. Similarly, the existence of a mobile home park nearby represents a substantial variance from the predominantly rural and residential area.

This economic study will be directed primarily to the probable values and uses of that land within

the study area which has not yet been developed (approximately 1500 acres of raw farm land). It is this land upon which thoughtful regulation and restriction can have the greatest impact and hence is of primary interest to the planner.

I. Current Situation (March, 1973)

A. Uses. At present, the existing and proposed near term uses of the undeveloped land are three fold. First, the land may continue to lie idle or be used primarily for agricultural purposes over the next several years. This use is the simplest, cheapest possible use and is encouraged by the investment potential inherent in a developing area such as this.

Secondly, a subdivision of a 150 acre farm into five acre tracts, all of which front on county roads is currently being carried out by a local real estate dealer. The tracts are to be homesites for single family residences, most likely year round homes. This type of subdivision is currently attractive to the "developer" for several reasons. First, it conforms to existing agricultural zoning limitations. Secondly, it avoids all subdivision regulations and red tape since all of the tracts exceed 5-acres in size. Thirdly, development costs are virtually

non-existent. Finally, there is substantial demand for relatively large home sites by people seeking the benefits of country living without the headaches of maintaining a large farm.

Finally, a 200 acre tract is being considered as a site for a golf course and country club. This use is encouraged by the existing zoning, which although not being conducive to large scale, dense development allows golf courses and country clubs. Further, the soil condition and low lay of the area represent substantial development problems for the home builder yet offer attractive potential for the designer of a golf course.

B. Current Values

The most meaningful way to ascertain land values is to observe the actual prices paid for land in the most recent transactions. Where this is not feasible, two other sources were used; local real estate brokers who have a good knowledge of the current market; and sales data from nearby areas with comparable conditions.

1. Raw farm land was estimated by local brokers to be selling in the $1200-1500/acre range depending on the actual situation or attractiveness of a particular piece. A 94 acre farm was being

offered at approximately $1750/acre but had not been sold after nearly a year on the market. Hence this price apparently represents an upper limit.

2. The five acre tracts were being recorded at slightly over $2000/acre and this appears to be both a reasonable and accurate measure of value.

3. Finally, building lot prices in a comparable area were approximately $3,000/acre. One finds, however, that this price accrues more to the lot than the size of the lot within a small area. That is, a 3/4 acre lot will suffer only slightly in price.

II. Analysis of Constraints

As mentioned earlier, both use and value are determined in the market place by supply and demand forces which appear to most actively shape supply and demand for raw land in the study area.

B. Zoning. The majority of the land is currently zoned "Agriculture" (A-1). The primary uses allowed are: farming, single-family residences on no less than 7500 sq. ft., golf courses, and commercial recreation areas.

Comment: The 7500 sq. ft. lot restriction is probably the most effective element of the above restriction in restraining demand. However, even

this restriction by no means prohibits a profitable and relatively dense subdivision.

C. Wright-Patterson Air Force Base Zoning.

The raw land in question lies outside of all but the "outer horizontal zone" of the Wright Patterson zoning. Hence, only height restrictions apply. This height limit is 500 feet for the area in question.

Comment: This zoning is virtually meaningless to the study area from the strict viewpoint since only high rise apartment buildings are in effect excluded. However, the mere fact that the land lies within an area over which the Air Force has some control may contribute to the perceived risk of a potential purchaser and hence lower the price by some immeasurable amount.

C. Sub-division Regulations. Virtually any substantial development of the raw land for commercial, industrial, or residential purposes requires submission of a plat for approval by the county subdivision board. They rule on lot size, density, engineering, road construction, septic requirements, etc. Thus, they have substantial power in shaping development in the area. Their rule, however, may not be an arbitrary one, and plats which conform to minimum specifications must generally be approved. Therefore, the constraints

that the sub-division regulations represent are primarily minimum lot areas for a given utility service (sewer and water), minimum road size, and some minimal level of engineering for control of drainage and soil erosion. Two areas in which sub-division regulations make no judgment are: 1.) Type of use (e.g. commercial, industrial, multi-family, etc.). This is left to zoning. 2.) Aesthetic appeal or conformance of the development to local standards or facts.

I shall not go into the road or engineering specifications necessary for approval by the sub-division board since they are rather technical and do not appear to be the factors restraining development in the study area. Rather, the relevant constraints appear to be minimum lot-size areas in residential development for given utility levels. These are outlined below:

a.) No public sewer or water
    1.) Only single family residences allowed
    2.) Minimum lot area is 28,000 sq. ft.
    3.) Minimum lot width is 125 ft.

b.) Public water but no public sewer
    1.) Only single family residences allowed
    2.) Minimum lot area is 20,000 sq. ft.
    3.) Minimum lot width is 100 ft.

c.) Public sewer but no public water

1.) Only single family residences

2.) Minimum lot area is 16,000 sq. ft.

3.) Minimum lot width is 80 ft.

d.) Public sewer and public water

1.) Single and multi-family units allowed.

2.) Minimum single family lot area is 7,500 sq. ft.

3. Minimum single family lot width is 60 ft.

4. Standards for multi-family developments are established by the commission for specific situations.

Comment: The Crystal Lakes Study Area has neither public sewer or public water. As such minimum lot area is restricted to 28,000 sq. ft., a size greater than the zoning restriction. This limitation certainly decreases the attractiveness of the land for large scale development. Note: The presence of sewer only would allow a developer to get 117 more lots from a 100 acre tract than under the current situation. The introduction of both sewer and water would theoretically allow for 426 more lots than under current restrictions. The impact on use and value of a change in utility service is likely, therefore, to be quite substantial.

D. Soil Conditions. Two soil factors affect the attractiveness of the land for development.

First is permeability, the ability of the land to absorb water for percolation tests. Second is a measure of water table level and soil composition to determine suitability for building construction. Data on both of these were furnished by the United States Department of Agriculture.

The county health department requires a minimum percolation time of 60 minutes per inch for a building lot. Large areas of soil in the study district would not meet this requirement.

There is a 200-300 acre tract where the golf course is proposed that is rated "severe" for building purposes by the soil conservation service.

Comment: Development is most certainly inhibited in the study area by the poor percolation capabilities of the soil. This situation certainly depresses land values and points up again the importance of public sewer for large scale development in the area.

E. External demand factors:

1.) Population--Demand for building lots is directly related to population increases. As population in the greater Dayton area is expected to increase 11% in the next 5 years and nearby areas experience comparable growth, prices and hence development, may be expected to increase substantially.

2.) Income--The medium income in the study area is approximately $11,000/year. Other than trend growth in wages and salaries, there appears to be little indication that the income class composition of the area is likely to change. Thus, the qualitative nature of housing demand will continue to be primarily for "middle-class" homes.

3.) Business--Commercial and industrial growth is forecasted to grow at about 1½% per year and as such will probably just keep pace with population growth in the area. It appears that this growth will not stretch the capacity of the area nor contribute inordinately to the demand for land in the area other than through contribution to incomes.

4.) Transportation--Most of the land in the study area is serviced by two-lane hard-surface county roads of good quality. Speed limits are in the 30-50 m.p.h. range and allow for effective servicing of developments in the area. Land prices do not appear to be depressed by inaccessability. However, a modern 4-lane highway would reduce commuting time by 5-10 minutes to Dayton or the north and by several minutes to Fairborn to the south. A "4-laner" would perhaps attract more commercial activity of the small retail variety and gasoline service stations. In general, however, values are not likely to be enhanced substantially by a wider highway.

Comment: Of the external demand factors, population and income growth will probably be the most active in increasing land values. Population growth of 2.1% per year (11% in 5 years) and forecasted national income growth of 5-8% per year can be expected to drive land prices up at a minimal rate of 10% per year. This rate conforms to historical growth rates in land value and is an extremely conservative estimate of price increase since it ignores the effect of changes in zoning, utilities, etc.

Inter-relationships of constraints

The planner must realize that use and value are determined by the inter-action of many factors. Attempts to shape development in an area through manipulation or regulation of only one or two factors will be effective only in the short run.

The over-riding force behind the process of development is the retail price for and use of land. The present estimated price of$3,000 for a one-acre lot is not a sufficient reward for a developer to incur the substantial costs of engineering, landscaping, road building, etc. Hence, the sub-division into 5-acre tracts results. Once, however, the price of building lots and homes in the area increases to a

"high enough" level, substantial development will most certainly occur. Development of all types and densities will emerge as economic forces act to determine the price for various end uses of land.

For example, the limitation of use and lot size in the absence of public sewer and water is at present an effective tool for prohibiting dense single and multi-family development. However, as external demand factors bid up the price of a building lot, home, or apartments, it will eventually become profitable for the developer to install a private sewage treatment plant--thereby allowing for more dense development, (16,000 sq. ft./lot) and multi-family units. At this point, however, the zoning restriction becomes the relevant constraint since it currently prohibits lots less than 25,000 sq. ft.

The developer then has the task of procuring a zoning variance. By pointing out the density of Park Layne and Crystal Lakes sub-divisions, the nearby trailer park, the increment to the tax base, and the overall demand for houses in the area, local zoning officials may readily grant such variances and thus development begins.

The immense pressure for development that the economic forces create is unavoidable. The study area is an extremely attractive area with tremendous

potential for all types of development. This potential will be increasingly realized as the area grows in population and income. Within the next 3-8 years the economic pressures will probably over come the existing constraints and large scale development will commence. The introduction of a public sewer line will hasten this development, but its absence will surely not prevent it. Similarly, new transportation links are likely to speed up development but are clearly not a necessity for it. In short, the future of this land as undeveloped farm land is quite limited.

Conservation Efforts

Development of the study area could be left to the random forces of supply and demand in the market place. Alternatively, it could be guided by the planner in a way which would bring both short and long run benefits to the communityand to society as a whole. If one chooses the latter alternative, I would make only two comments. First, incentive and disincentive systems will ultimately fail as economic forces over-power the artificial gains or costs of governmentally imposed constraints. Second, the only sure-fire method of guiding development is through strict, unexcepting enforcement of logical and meaningful zoning laws.

VII. Conclusions

Inherent within any design for development control for the entire region are found numerous goal conflicts. That is, by setting policy and administering the respective ordinances and regulations to achieve one desirable product, a governmental agency may be taking action contrary to the achievement of another desirable purpose. Several of the most obvious goal conflicts are:

Regional versus local: Action thought to be in its own best interest is often taken by a local government which ends up working against the best interests of its neighbors or of the metropolitan region as a whole. On the other hand, action by a larger government sometimes creates unusual hardship in a particular community.

There are many good examples of this in the study area. The local development of housing that threatens Wright Patterson Air Force Base and the regional transportation proposal to develop the 675 Dayton bypass illustrate this point.

Public interest versus private rights: All land use regulations infringe on private property rights by taking away some of a landowner's freedom to do with his property as he pleases. There is a constant debate as to where the line should be

drawn between public interest and private freedom, or between "regulation" and "taking."

Development of 5-acre housing plots without controls and the lack of conservation zoning helps to shed light on the conflict of private freedom and any proposal to regulate that kind of land use.

Conservation versus change: Within all developed areas, and particularily in suburban areas, most of the citizens seem satisfied with the status quo. But technological change and population pressures are creating a demand for change, which is resisted by the citizens who desire to, and have a right to, preserve and protect their own property.

An excellent example of this phenomenon, to be discussed later in more detail, is the desire of Crystal Lake residents to remain a separate community from its surrounding communities. While data is unavailable the responses received in a questionnaire indicated the majority of the residents were concerned about social and property values.

Identity versus diffusion: At its worst, this conflict includes the improper, but nonetheless real, desire of a community to maintain its "identity" by excluding outsiders, such as low-income persons. Many times such actions are contrary to the national goal of protecting the constitutional right of minority groups.

The study area reflects this concern mainly once again in the desire to remain separate and free from involvement with its neighboring communities.

In addition to goal conflicts, there are numerous constraints and conflicts within present mechanisms regulating land development. Through selected readings and interviews with area planners, real estate brokers and property owners, a list of land use problems for the study area was compiled. The major problems found were:

1. Fragmentation of land development control has made guidance of urban growth according to a regional plan a virtual impossibility. The basic conditions are as follows: a) existence of controls versus their absence; and b) 1930 ordinances versus 1970 ordinances, with varying standards for development and varying use permissions and prohibitions.

2. Local government actions in land use regulation are often against the public interest of the region.[21]

3. Zoning and subdivision regulations in their present limited form are not fully adequate to regulate urban development, even if coordinated.[22]

4. Zoning and subdivision regulations are often used in an attempt to correct fiscal problems of local government and not to guide urban development in an efficient pattern.[23]

5. Rigid zoning, subdivision and building codes prevailing within numerous jurisdictions throughout the region prevent the use of design innovations which could provide higher standards of development as well as bring housing costs within the reach of many families who are presently priced out of the market.

6. Land use regulations have become so complex that they cannot be easily administered by part-time or lay boards such as city councils, planning commissions, and boards of zoning appeals.

7. While utilities provide an effective means to guide urban development patterns, they are not generally utilized to implement a land development plan, also, the legality of such a tool is questioned by many.

8. The present system of ad valorem taxation and assessment procedure increases land speculation to the detriment of an efficient land development pattern.[24]

9. Although prime agricultural lands, flood plains, areas of poor soil suitability, and public recreation areas could be protected through present legal tools, a considerable additional amount of developable land will have to be excluded from development in order to achieve any acceptable future development patterns.

NOTES

1. Von Eckardt, Wolf, The Challenge of Megalopolis, p. 121 (1964)

2. Clawson, Marion, Suburban Land Conversion in the United States, p. 95 (1972)

3. Clawson, op. cit., p. 99

4. Bland, James, "New Deal for Land," (Feb. 12, 1973)

5. Miami Valley Regional Planning Commission, "Comprehensive Planning Progress Report," p. 7 (Jan., 1972)

6. Miami Valley Regional Planning Commission, "The Regional Development Study," p. 8 (June, 1972)

7. Miami Valley Regional Planning Commission, "The Regional Development Study," p. 10 (June, 1972)

8. Clawson, op. cit., p. 51

9. Hoover, Edgar M., Issues in Urban Economics, p. 241

10. Miami Valley Regional Planning Commission, "Comprehensive Planning Progress Report," p. 8 (Jan. 1972)

11. Ibid, p. 8

12. Hoyt, Homer, Homer Hoyt Institute Urban Land Use Requirements 1968-2000, p. 11

13. Ibid, p. 24

14. Ibid, p. 25

15. Ibid, p. 29

16. Miami Valley Regional Planning Commission "Opportunities and Constraints," p. 3

17. Dickenson, William, "Medway Swampland: A Rare Environment," (April, 1971)

18. Miami Valley Regional Planning Commission "Comprehensive Planning Progress Report," p. 6 (Jan., 1972)

19. Miami Valley Regional Planning Commission "Tool Kit for Plan Implementation," p. 2

20. Clawson, op. cit., p. 65

21. Miami Valley Regional Planning Commission "The Regional Development Study," p. 15

22. Clark County-Springfield, Ohio Regional Planning Commission, "A Development Plan for Medway, Crystal Lakes, and Park Layne Manor," p. 32 (1969)

23. Miami Valley Regional Planning Commission "The Regional Development Study," p. 14

24. Clark County-Springfield, Ohio Regional Planning Commission, op. cit., p. 35

SECTION III

CRYSTAL LAKES AREA ANALYSIS

CRYSTAL LAKES AREA ANALYSIS
Table of Contents

I. Why be concerned?

The Crystal Lakes Study Area and its surrounding communities of Medway and Park Layne Namor is the most rapidly growing portion of Clark County.[1] Rapidity of growth is a major reason for studying this area in the hope that information sources are more current and solutions derived will be applicable and appropriate for today's urban design alternatives for the Crystal Lakes Community.

While the present growth of residential development in and around the study area has been lessening during the last few years, Dayton and its attached suburbs have been growing outward.[2] Both the Miami Valley and Clark County-Springfield Regional Planning Commissions envision the Crystal Lake area as an attached Dayton urban zone by the year 2000. Data previously presented from the Homer Hoylt Institute, Washington D.C. also project urban inclusion of the area into the Dayton urban sphere. Conclusions from the economic study clearly point to ultimate development of the Crystal Lakes area and perhaps sooner than the planners expect.[3]

There are many uncertainties in the future of Crystal Lakes. However, there are several assumptions that can not be denied; in one form or another, growth and changes toward urban land uses are coming into the area.

There are several proposed physical developments proposed for the area that will have drastic environmental impact should they occur or occur without proper planning or changes in land use controls. Of these the major concerns are the proposed construction of utilities and highways. The construction of sewer and water utilities for the Crystal Lakes area, while badly needed by present residences, would have drastic effects on urban residential development. The economic incentive to develop housing would quickly force land sales to the land developers as indicated in the economic study.[4]

While not having the economic pressures of utility development the environmental impact of the proposed 675 Highway east of the Crystal Lakes area would be massive when developed in conjunction with the extention of the Route 4 Expressway to the west of the study area. These highways along with the existing Interstate 70 would form a triangle of 4 lane highways surrounding the study area. There would not be a site location in the enclosed area that would be more than a mile and a quarter from one of these major freeway penetrators.

Residents need be concerned because there is no real control of land use nor a design for development that indicates what, where, and how development will or should occur.[5] Cause for concern can be found in

many areas, from need for planning and controls of land use to what is occurring in present development; however, the Crystal Lakes site's physical constraints are still important factors. The following section will consider the physical site and will continue to express needed concerns over its present and future use.

II. Crystal Lakes Questionnaire

The questionnaire was devised to gather community input as to what should be done within the community. This expression is vital to the Crystal Lakes study in that it would supply data directly concerned with the desired physical surroundings of Crystal Lakes.

While the physical survey of desired development was the study objective, the questionnaire wording asked for a spontaneous expression of attitudes concerning Crystal Lakes' physical environment. Questions were designed to give the opportunity for individual input as well as a structured five-point range of responses. These five-point questions make possible a break-down of answers into unfavorable, neutral, and favorable responses.

Much valuable assistance was obtained from Dr. John Scott, Institute of Social Research, Ann Arbor, Michigan,

in developing the questionnaire content and structure. Also of great assistance in the computer analysis of the questionnaire data was Mr. Joel Liberman of the Statistical Research Laboratory, The University of Michigan.

Three hundred eighty copies of the questionnaire, with cover letter, were distributed to community residents through neighborhood volunteers. Questionnaires were delivered and picked up by the volunteers within their own neighborhoods. One hundred twenty-eight were returned and sufficiently completed to be used as the data source, a response of 24%.

Responses were coded and tabulated by computer. Information from this tabulation is included in Appendices I, II, and III at the end of this section. The validity of the data gahtered has proven to be quite accurate when compared with other reliable information sources. There is little or no variance between 1970 census data for size of family, employment location, home ownership, number of automobiles and that gathered in the questionnaire. There was also only favorable comparison between personal interview data and community inputs. An example of this is the stated membership in the local property owners' association to be approximately one half of the citizenry, the questionnaire indicated 54% as members.

In reviewing the responses, a number of problems with the questionnaire did appear. Some of these problems are noted on the sample of the questionnaire at the end of this evaluation, as is also found an analysis tabulation.

The questionnaire was not as revealing and as valuable as hoped for in indicating desired physical development. However, it does shed light on what is considered by many to be the problem areas and add additional information about the peoples of Crystal Lakes and what they value about the community.

The following conclusions are the interpretations of data and analysis of the Crystal Lakes Questionnaire by the author. Questionnaire data indicate:

1. Areas of desired community improvement:

   A. Lakes and community grounds
   B. Street lighting
   C. Sewer and water
   D. Clean private property

   Note: Compare questionnaire data.

2. Satisfaction of living in Crystal Lakes:

   A. Total community is satisfied
   B. Want separate community
   C. The more urban the background, the more satisfaction
   D. Retired persons dissatisfied

3. Rural-urban development

   A. All agree property value is increased by community improvement
   B. Rural background desired urban improvements
   C. Urban background desired rural atmosphere

4. Number in family indicated strong relation of lake importance (beach) to increasing family size.

5. Education not a factor.

6. Home ownership indicated property owners are less enthusiastic than renters but desired the same improvements, the one exception being pedestrian walks.

7. Length of residency varied greatly in wants and established no stable trend.

8. All generally agreed that lakes need to be improved.

9. The majority of the community agreed that community improvement added to property value with the exception of pedestrian walks, street improvements, and lake plantings. Because of the lay-out of property lines the prior two are a threat to lot size.

10. All generally agreed that the lakes add to property values, with the exception of the North Lake residents. Most disagree that the lakes are polluted and beach facilities are excellent.

11. There are strong feelings that while Crystal Lakes will not grow significantly, it should remain a separate community.

12. Existing vehicular traffic conditions are poor with the major problem being speeding. The smaller number of autos in the family, the worse the traffic conditions. The most popular solution is improved policing and traffic controls.

13. Existing pedestrian conditions are considered poor by all, and while community improvements are desired, there is no desire for pedestrian walks. Such factors as encroachment of property lines and automobile-oriented transportation seem to be the key factors in walks' undesirability.

III. Crystal Lakes Site Conditions

A. Local Government

The present political situation in and around the Crystal Lakes Study Area is at best a basic structure of limited value in its representation of the populace concerning matters of land use, present or future. The smallest political unit is the township with the county government being next in line. County government serves as the real political organ whose functions have a direct result upon the land uses and development allowed to occur. The local residents have little actual power to control undesired development of regional goals and planning since local government has no control or power to oppose any development.[6] Local political conditions are such that changes in land use regulations for the local area are, in effect, out of the hands of local residents and in the hands of regional government.

B. Transportation

The principal highways in the area are Interstate 70, State Routes 440 and 235 (Rt. 4 Expressway). Interstate 70 is a limited-access, four-lane, divided highway and both state routes are two-lane, undivided highways. In 1970 ISR 70 carried 17,500 vehicles per 24-hour period, while SR 235 carried 6500 and SR 440 carried 2500. These traffic counts were taken by the Ohio Department of Transportation within the boundaries of the study area.[7]

The secondary roads of the area, as designated on the Clark County Thoroughfare Plan, are Gerlaugh, Lower Valley Pike, and Medway-New Carlisle Road extending south to SR 444. Gerlaugh is a 60 foot wide road as are Medway-New Carlisle and Lower Valley Pike, and carry approximately 1,600 vehicles each daily.

All of the roads in the Crystal Lakes subdivision are 40 feet wide. In the Park Layne Plat, the roads are 50 to 60 feet wide, and in the Medway vicinity the roads are 50 to 70 feet wide. The existing designated thoroughfares are shown on the Clark County Thoroughfare Plan which follows this section.

The principal traffic movement of the area is East-West on ISR 70, but most of this traffic is

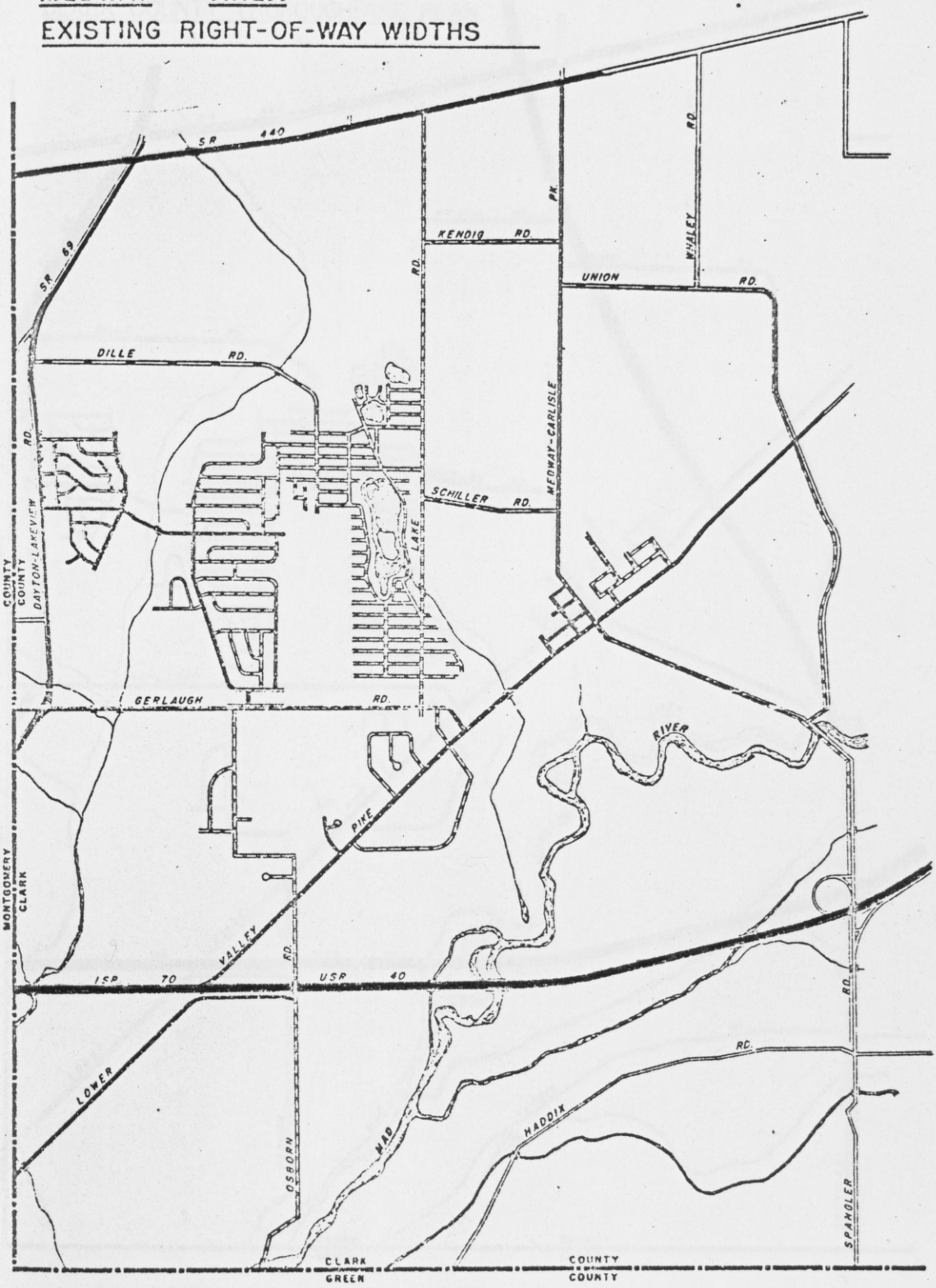
considered to be through traffic, generally extraneous to the vicinity. The pattern of traffic movement, as indicated by traffic counts and shown on the traffic count map is significant in that it indicates movement along SR 235 (Rt. 4 Expressway), Lower Valley Pike, Osborn Road and SR 444. The primary North-South route is SR 235. Lower Valley Pike and Osborn Road are secondary when comparing traffic count. SR 444 is designated as a primary thoroughfare largely due to its role as a connector of ISR 70 to the Dayton-Springfield Road, and in this capacity carried through traffic from east of the study area to south of the study area and from south to east.

The predominant internal pattern of traffic movement is unknown. The author assumes that the important internal roads lead to population and business clusters and casual observation seems to support this assumption. The major internal roads in the study area are Styer Road, Weinland Road, Gerlaugh Road, Lower Valley Pike, Lake Road, and Medway-New Carlisle Road.

Should present planning in transportation occur there will be added two major freeway penetrators within the immediate vicinity of the Crystal Lakes area.

FIGURE 2

CRYSTAL LAKE
MEDWAY AREA
EXISTING RIGHT-OF-WAY WIDTHS



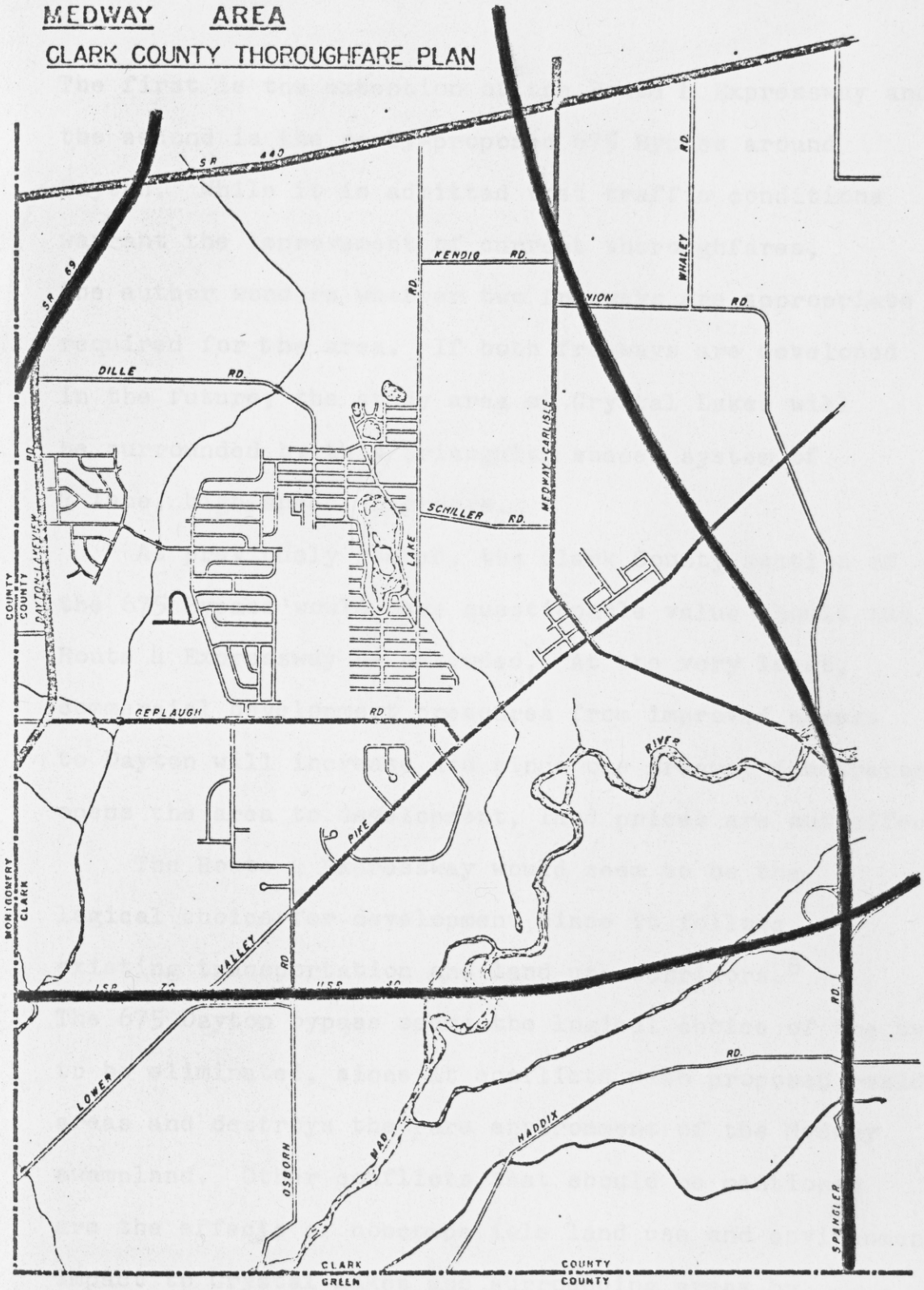
LEGEND

- OVER 100'
- 70-100' plus
- 60'
- 50'
- 40'
- 30'

Taken from: A Development Plan for the Medway, Crystal Lakes, Park Layne Manor Area

REGIONAL PLANNING COMMISSION
CLARK COUNTY - SPRINGFIELD, OHIO

CRYSTAL LAKE
MEDWAY AREA
CLARK COUNTY THOROUGHFARE PLAN



LEGEND:

- LIMITED ACCESS HIGHWAY
- PRIMARY ROAD
- SECONDARY ROAD

Taken from A Development Plan for the Medway, Crystal Lakes, Park Layne Manor Area

REGIONAL PLANNING COMMISSION
CLARK COUNTY-SPRINGFIELD, OHIO

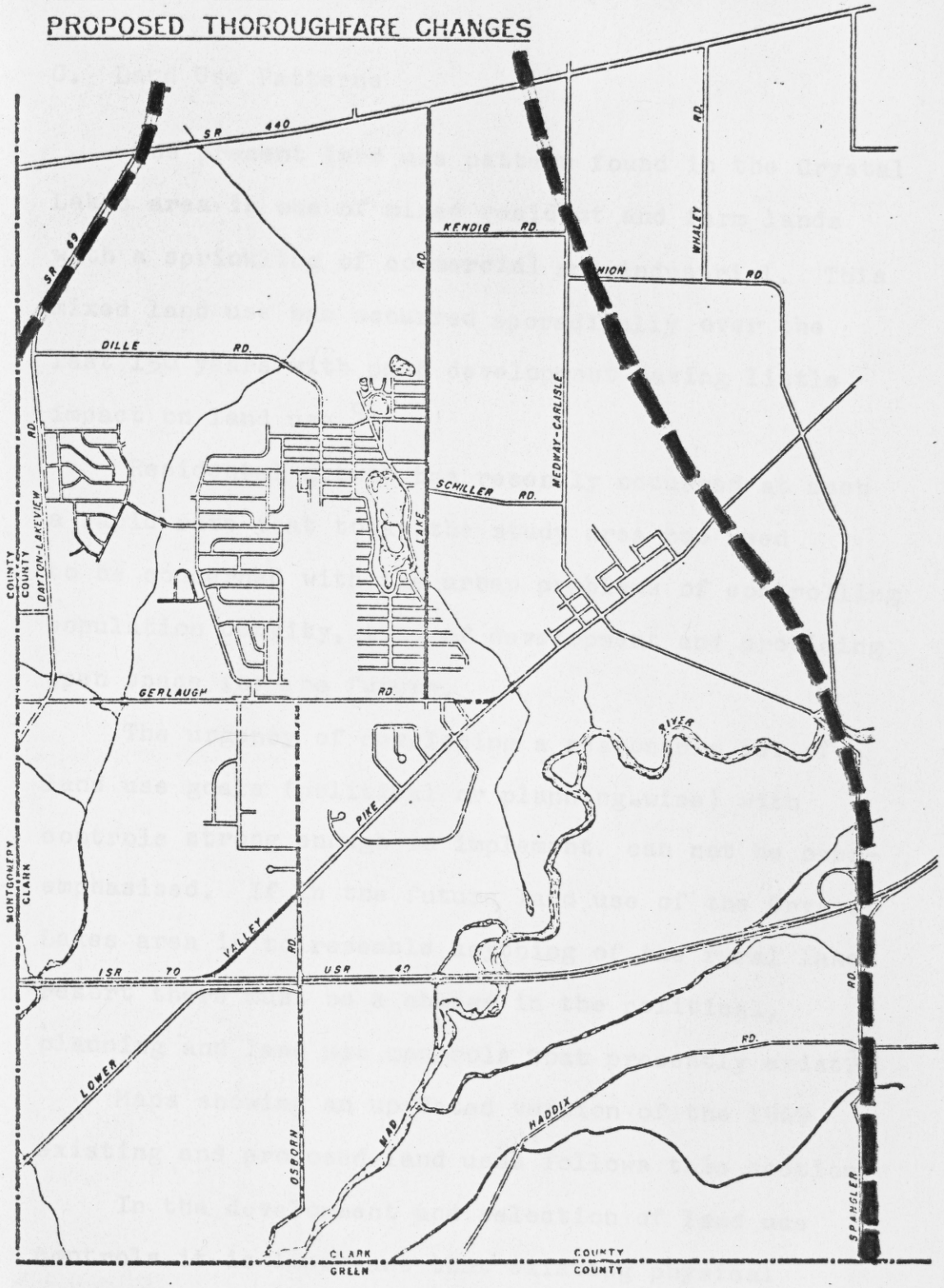
The first is the extention of the Route 4 Expressway and the second is the newly-proposed 675 Bypass around Dayton. While it is admitted that traffic conditions warrant the improvement of current thoroughfares, the author wonders whether two freeways are appropriate or required for the area. If both freeways are developed in the future, the study area of Crystal Lakes will be surrounded by this triangular shaped system of 4 lane, high speed, highways.

As previously stated, the Clark County section of the 675 Bypass would have questionable value should the Route 4 Expressway be extended. At the very least, commercial development pressures from improved access to Dayton will increase and since one freeway penetrator opens the area to development, land prices are not affected.

The Route 4 Expressway would seem to be the logical choice for development since it follows existing transportation and land use corridors.[8] The 675 Dayton bypass seems the logical choice of the two to be eliminated, since it conflicts with proposed residential areas and destroys the rare environment of the Medway swampland. Other conflicts that should be mentioned are the effects of noncompatible land use and environmental impact to Crystal Lakes and surrounding areas by its envelopment in the noise, air, and visual pollution of 4-land highways; while only slightly increasing vehicular access to the immediate area being studied.

FIGURE 4

CRYSTAL LAKE
MEDWAY AREA
PROPOSED THOROUGHFARE CHANGES



LEGEND:

- SECONDARY ROADS
- ALTERNATE PROPOSAL (under study)
- PROPOSED SECONDARY ROADS
- PROPOSED LIMITED ACCESS HIGHWAY

Taken from A Development Plan for the Medway, Crystal Lakes, Park Layne Manor Area

REGIONAL PLANNING COMMISSION
CLARK COUNTY-SPRINGFIELD, OHIO

C. Land Use Patterns

The present land use pattern found in the Crystal Lakes area is one of mixed resident and farm lands with a sprinkling of commercial and industrial. This mixed land use has occurred sporadically over the last 150 years with past development having little impact on land use.[9]

Residental growth has recently occurred at such a rapid rate that today the study area has need to be concerned with the urban problems of controlling population density, type of development and providing open space for the future.

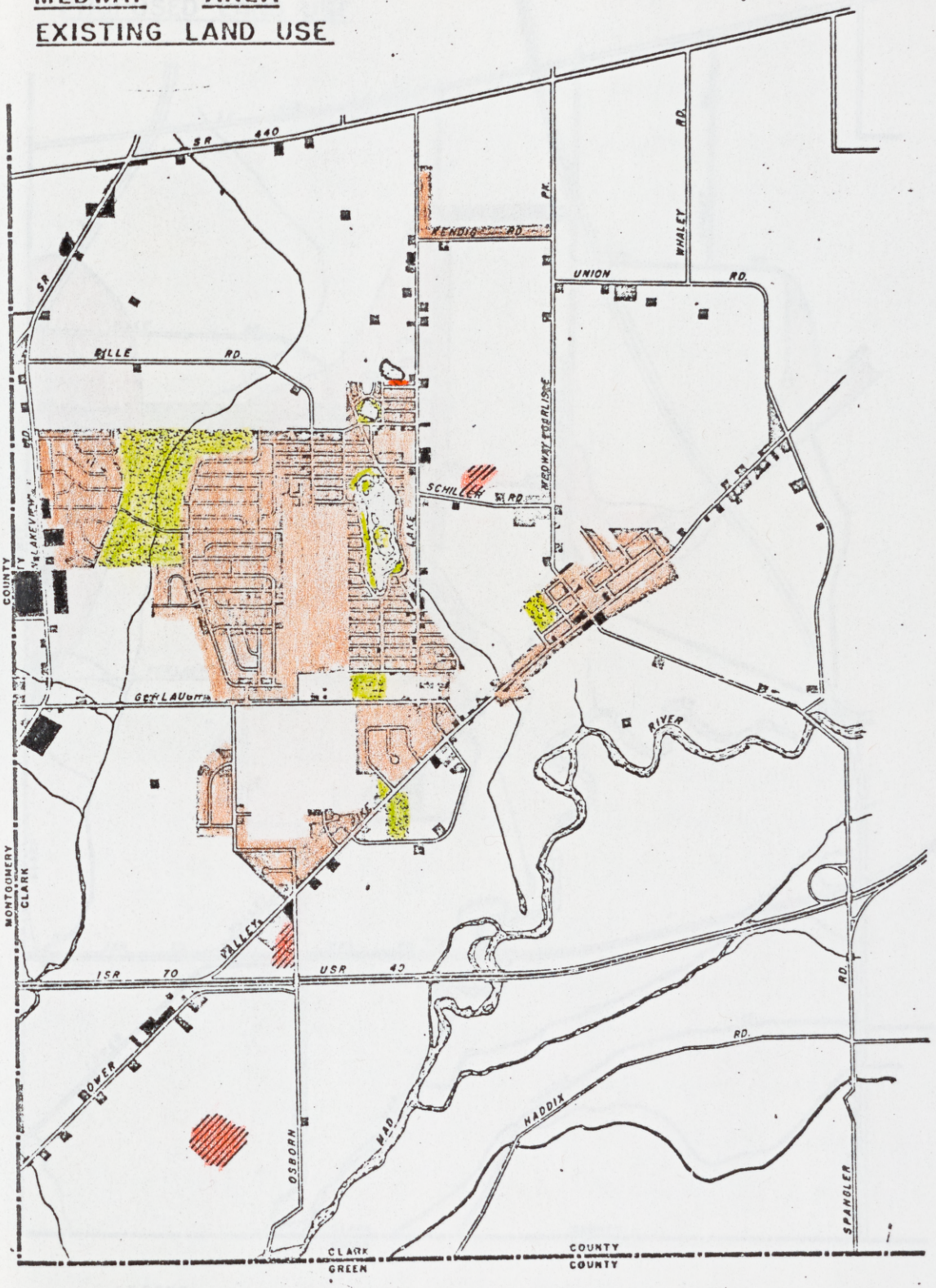
The urgency of developing a reasonable set of land use goals (political or planning-wise) with controls strong enough to implement, can not be over-emphasised. If in the future, land use of the Crystal Lakes area is to resemble anything of the rural lake resort there must be a change in the political, planning and land use controls that presently exist.[10]

Maps showing an up dated version of the 1969 existing and proposed land uses follows this section.

In the development and selection of land use controls it is important that existing physical conditions be considered and evaluated as to their effects on development. The Clark County-Springfield, Ohio Regional Planning Commission made a study of

FIGURE 5

CRYSTAL LAKE
MEDWAY AREA
EXISTING LAND USE



LEGEND:

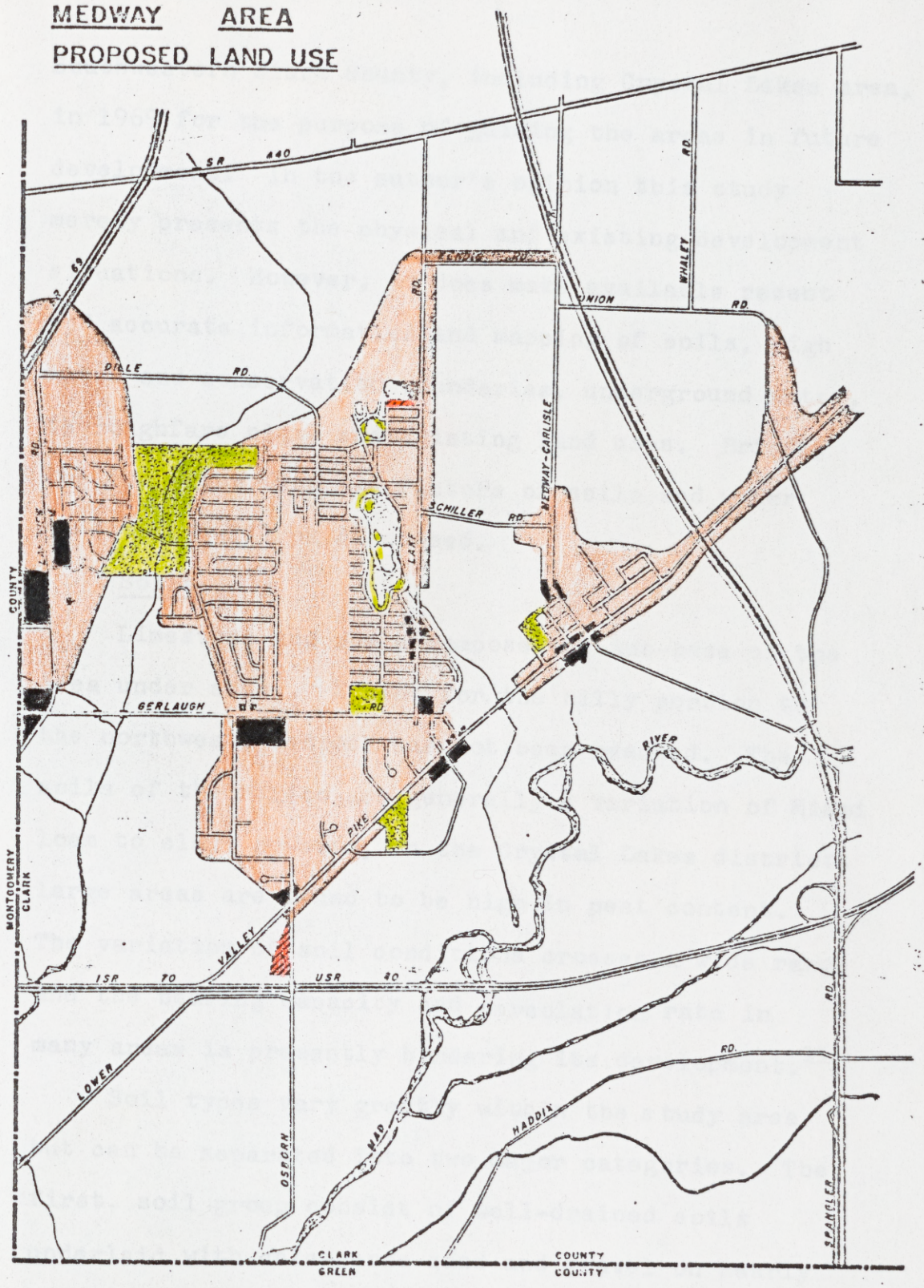
- RESIDENTIAL
- COMMERCIAL
- PUBLIC AND SEMI-PUBLIC
- INDUSTRIAL
- AGRICULTURE AND VACANT LAND

Taken from A Development Plan For the Medway, Crystal Lakes, Park Layne Manor Area

REGIONAL PLANNING COMMISSION
CLARK COUNTY - SPRINGFIELD, OHIO

FIGURE 6

CRYSTAL LAKE
MEDWAY AREA
PROPOSED LAND USE



LEGEND:

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- PUBLIC OR SEMI-PUBLIC
- OPEN LAND / AGRICULTURE

Taken from A Development Plan for the Medway, Crystal Lakes, Park Layne Manor Area

REGIONAL PLANNING COMMISSION
CLARK COUNTY - SPRINGFIELD, OHIO

Southwestern Clark County, including Crystal Lakes area, in 1969 for the purpose of guiding the areas in future development. In the author's opinion this study merely presents the physical and existing development situations. However, it does make available recent and accurate information and mapping of soils, high water and conservation boundaries, underground water, thoroughfare plans and existing land uses. Briefly the two major land use factors of soils and water conditions will be discussed.

Soils

Limestone and shale compose the sub-base of the area under study. Except for the hilly portion to the northwest, bedrock has not been reached. The soils of the region are generally a variation of Miami loam to clay; however, in the Crystal Lakes district, large areas are found to be high in peat content. The variation of soil conditions crosses a wide range and the bearing capacity and percolation rate in many areas is presently hindering its development.[11]

Soil types vary greatly within the study area but can be separated into two major categories. The first soil group consist of well-drained soils underlaid with calcareous sand and gravel on nearly level to undulating relief (Fox-Ockley-Mill Creek Soils).

FIGURE 7

Taken from A Development Plan for the Medway, Crystal Lakes, Park Layne Manor Area

CRYSTAL LAKE MEDWAY AREA SOIL CHARACTERISTICS

LEGEND:

- WELL-DRAINED OR MODERATELY WELL-DRAINED, NEARLY LEVEL SOILS OF THE BOTTOM LANDS — 0-2 % SLOPES
- NEARLY LEVEL WELL-DRAINED LIGHT COLORED DEEP OR MODERATELY DEEP SOILS OF THE TERRACES & UPLANDS — 0-2 % SLOPES
- NEARLY LEVEL IMPERFECTLY, POORLY OR VERY POORLY DRAINED SOILS OF THE BOTTOM LANDS — 0-2 % SLOPES
- NEARLY LEVEL VERY POORLY DRAINED DARK COLORED DEEP SOILS OF THE TERRACES & UPLANDS — 0-2 % SLOPES
- UNDULATING WELL-DRAINED OR MODERATELY WELL DRAINED LIGHT COLORED DEEP TO MODERATELY DEEP SOILS OF THE TERRACES & UPLANDS — 2-6 % SLOPES
- NEARLY LEVEL IMPERFECTLY OR MODERATELY WELL-DRAINED LIGHT COLORED SOILS — 0-6 % — 2-5% SLOPES
- UNDULATING, ERODED, WELL-DRAINED OR MODERATELY WELL-DRAINED LIGHT-COLORED DEEP SOILS OF THE TERRACES & UPLANDS — 2-6 % SLOPES
- ROLLING OR SLOPING LIGHTLY TO MODERATELY ERODED WELL-DRAINED LIGHT-COLORED DEEP SOILS OF THE TERRACES & UPLANDS — 6-10 % SLOPES
- NEARLY LEVEL VERY POORLY DRAINED DARK-COLORED ORGANIC (MUCK) SOILS — 0-2 % SLOPES
- ERODED SLOPING LIGHT-COLORED MODERATELY DEEP SOILS OF UPLANDS — 2-10 % SLOPES
- STRONGLY SLOPING MODERATELY TO SEVERELY ERODED LIGHT SOILS OF UPLANDS — 6-35 % SLOPES
- GRAVEL PIT OR SWAMP

REGIONAL PLANNING COMMISSION
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The second group are soils with alluvial terraces and organic matter or nearly level relief; most of them poorly drained. This group is made up of Westland-Abington, Mahalasville-Needham, Carlisle, and Genesee-Sloan-Wabash Soils.[12]

Water Conditions

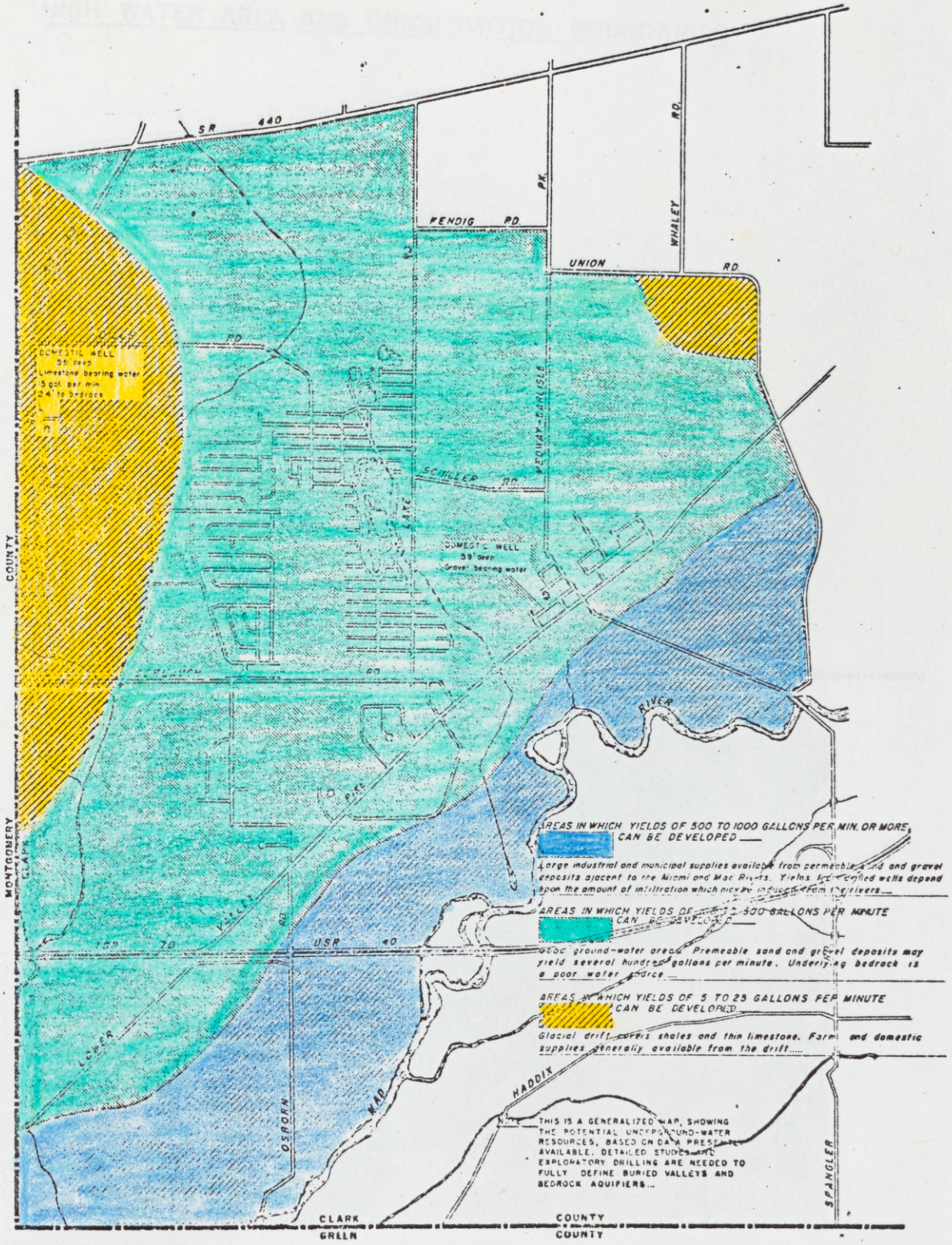
The portion from which the highest yields of ground water are available is that zone closest to Mad River.[13] This portion is very sparsely populated as it is subject to inundation. The large middle portion of the area is most densely settled and the underground water yield is from 100 to 500 gallons per minute in this portion. The hilly area to the northwest is scattered with population settlement, but this area has a relatively poor yield of ground water of five to 25 gallons per minute.

Surface water is scattered throughout the area. Mad River is the greatest source of surface water and the Crystal Lakes are important in this regard.[14] There are numerous low spots in the area that fill with water in abandoned diggings that now remain filled with water. Various ponds and streams also exist in the area.

Surface water reaches high proportions in the area at times. The Miami Conservancy District boundary

FIGURE 6

CRYSTAL LAKE
MEDWAY AREA



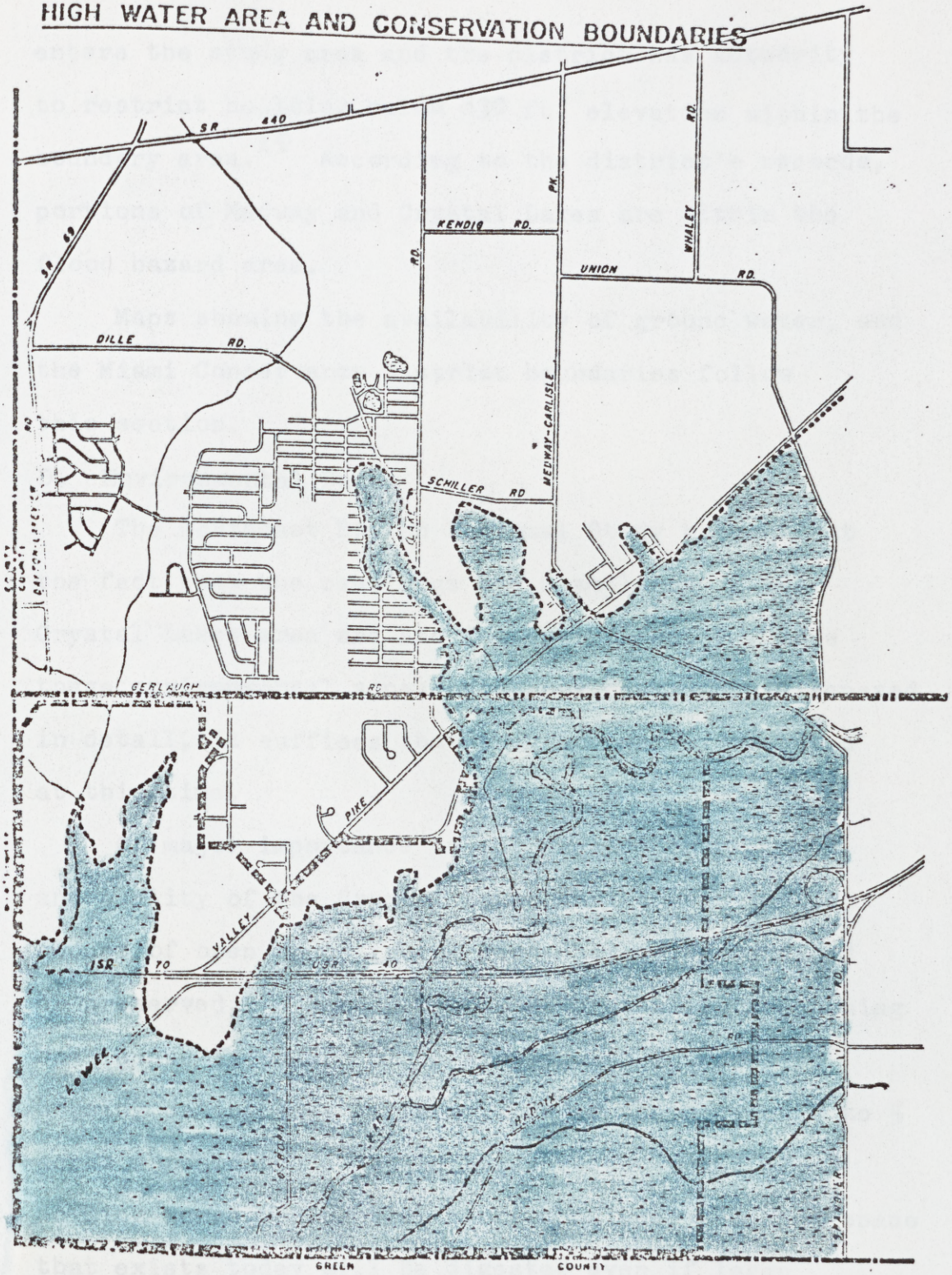
Taken from A Development Plan for the Medway, Crystal Lakes, Park Layne Manor Area

AVAILABILITY OF UNDERGROUND WATER

93 Source—OHIO WATER PLAN INVENTORY 1960, OHIO DEPT. OF NATURAL RESOURCES DIVISION OF WATER.

REGIONAL PLANNING COMMISSION
CLARK COUNTY - SPRINGFIELD, OHIO

CRYSTAL LAKE
MEDWAY AREA
HIGH WATER AREA AND CONSERVATION BOUNDARIES



LEGEND:

- Miami Conservancy District Boundary
- District Flood Easement Boundary
- Flood Hazard Area

Taken from A Development Plan for the Medway, Crystal Lakes, Park Layne Manor Area

SOURCE: MIAMI CONSERVANCY DISTRICT

REGIONAL PLANNING COMMISSION
CLARK COUNTY - SPRINGFIELD, OHIO

enters the study area and the district has authority to restrict building below 830 ft. elevation within the boundary area.[15] According to the district's records, portions of Medway and Crystal Lakes are within the flood hazard area.

Maps showing the availability of ground water, and the Miami Conservancy District boundaries follow this section.

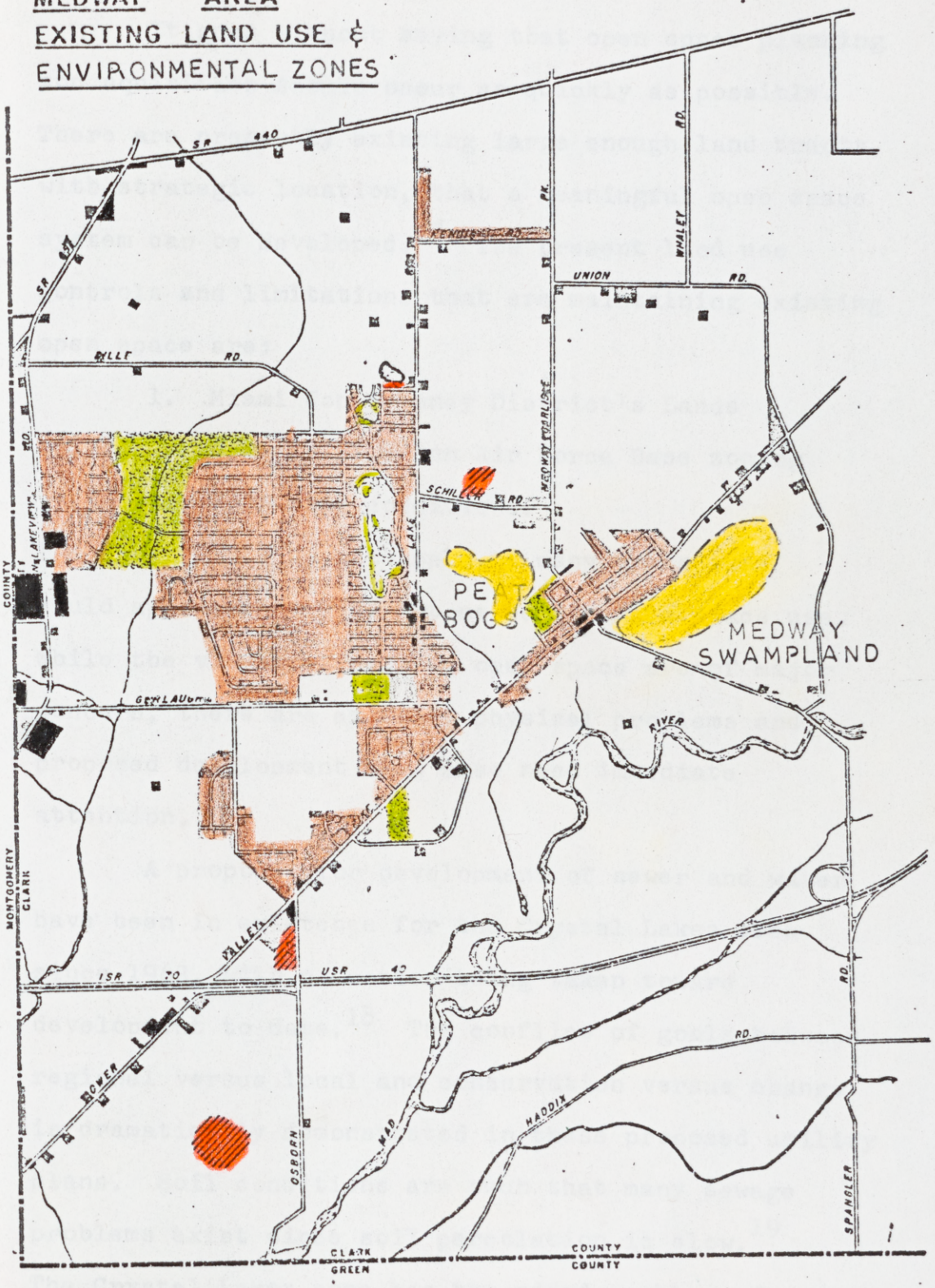
D. Environmental Data

The Northeast Dayton Regional Study brought out the fact that the peat bogs and swamplands in the Crystal Lakes area are special environments. Since these environmental zones have previously been discussed in detail, it suffices that they are merely restated at this time.

Of major importance to the present character and quality of the Crystal Lakes environment is the amount of open space (rural land use) to be retained or preserved.[16] Land development presently threatening open space is taking place slowly with low density housing eating away at farm lands at the rate of 3 to 5 acres a residence. Should this present trend of selling large residential plots continue, the open space that exists today will be digested even if large tract subdivisions avoid development of the area.

FIGURE 10

CRYSTAL LAKE MEDWAY AREA EXISTING LAND USE & ENVIRONMENTAL ZONES



LEGEND:

- RESIDENTIAL
- COMMERCIAL
- PUBLIC AND SEMI-PUBLIC
- INDUSTRIAL
- AGRICULTURE AND VACANT LAND
- ENVIRONMENTAL ZONES

Taken from A Development Plan for the Medway, Crystal Lakes, Park Layne Manor Area

REGIONAL PLANNING COMMISSION
CLARK COUNTY - SPRINGFIELD, OHIO

It goes without saying that open space planning and aquisition should occur as quickly as possible. There are presently existing large enough land tracts, with strategic location, that a meaningful open space system can be developed.[17] The present land use controls and limitations that are maintaining existing open space are:

1. Miami Conservancy District's Lands
2. Wright Patterson Air Force Base zoning
3. Poor soil conditions.

The constraints do not apply to many areas that could appropriately be set aside for open space use. While the visual effects of open space are of major concern, there are existing physical problems and proposed development that also need immediate attention.

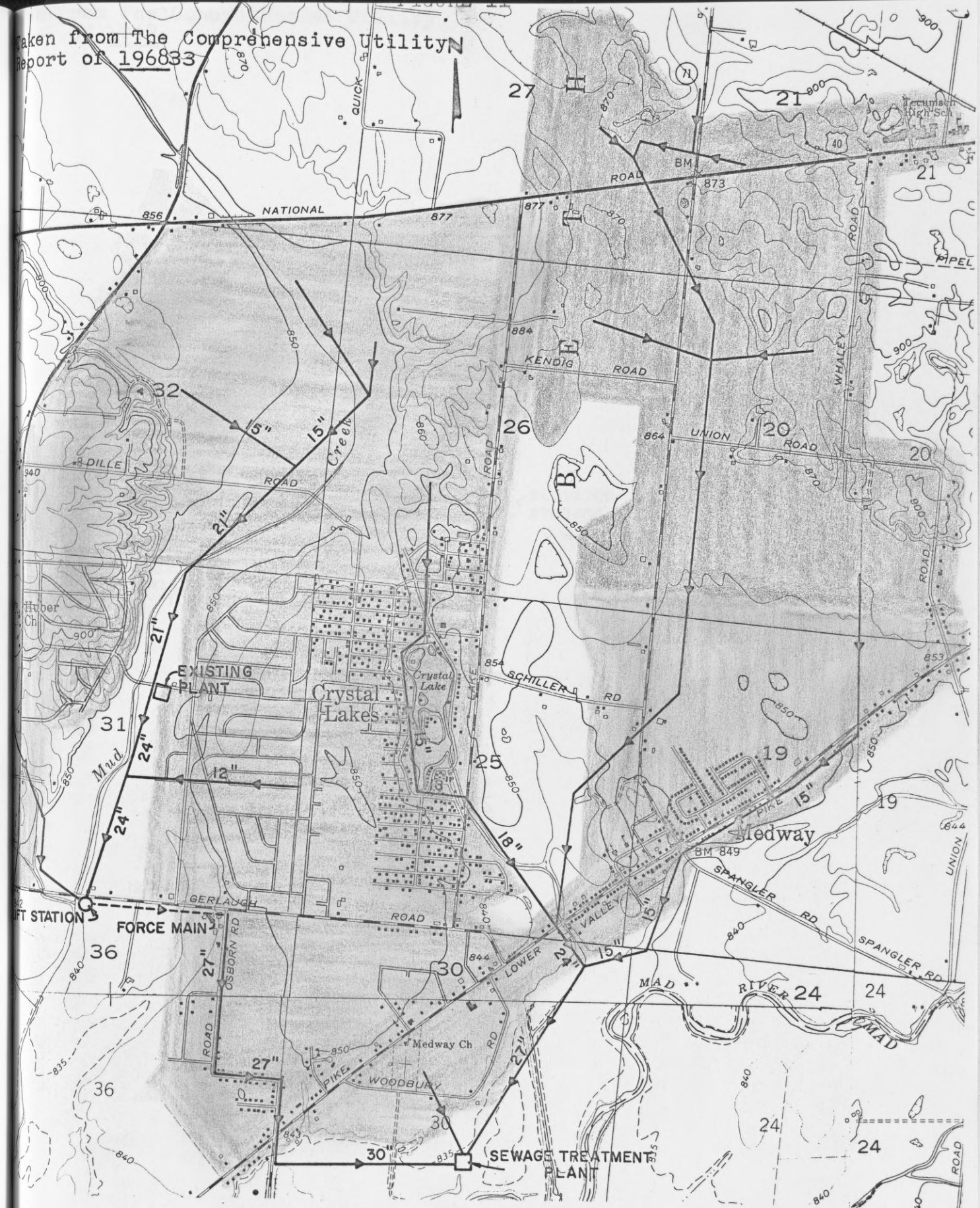
A proposal for development of sewer and water have been in existence for the Crystal Lakes area since 1963, with no action being taken toward development to date.[18] The conflict of goals between regional versus local and conservation versus change is dramatically demonstrated in these proposed utility plans. Soil conditions are such that many sewage problems exist since soil percolation is slow.[19] The Crystal Lakes area has the added problem of

nutrients entering lake water and increasing plant growth thus threatening the lake environment. While sewer and water utilities are desired by the population of Crystal Lakes, there are good reasons for not developing them for the area.[20] Maps showing proposed utilities follow this section.

First and most important is the fact that, should sewer utility be made available as called for in the existing proposal, there is great economic pressure for residential development of the existing rural countryside. Another problem area is that proposed sewage treatment only calls for secondary treatment of waste and not tertiary. Since treated waste is to end up in the Mad River, it could become a major economic dilemma should Dayton's water supply become contaminated.

Of direct concern to the study area of Crystal Lakes is the threat of possible damage to the springs that feed the lake should deep wells be located incorrectly in the water shed. Couple the draining of the Medway swamp for highway development with a lowered water table from deep wells, the very existence of the lakes could be threatened. While these statements are not backed by factual data, the author has found no one who will or can say what the effects of the above mentioned development would have.

Taken from The Comprehensive Utility Report of 196833.



CRYSTAL LAKES, PARK LAYNE & MEDWAY
COMPREHENSIVE SEWER PLAN

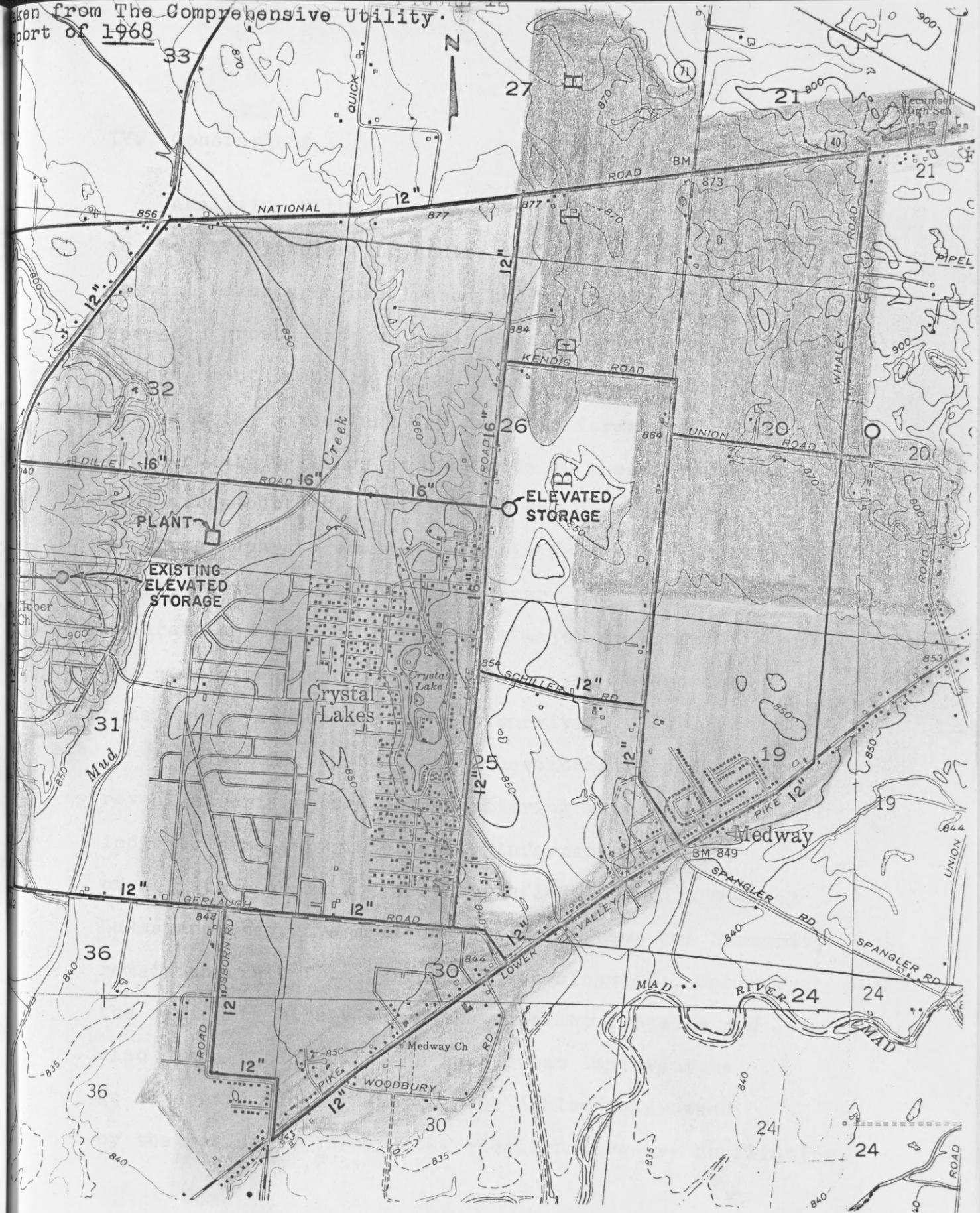
SCALE
1000 2000

1990 LAND USE 99

POTENTIAL GROWTH AREA

PREPARATION OF THIS MAP WAS FINANCIALLY ASSISTED THROUGH A FEDERAL GRANT FROM THE URBAN MASS TRANSPORTATION ADMINISTRATION OF THE HOUSING AND HOME FINANCE AGENCY, UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701

aken from The Comprehensive Utility
eport of 1968



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E AGENCY, UNDER THE URBAN PLANNING
PROGRAM AUTHORIZED BY SECTION 701

IV. Conclusions

Analysis of the Crystal Lakes Area is revealing in its many interesting and basic conclusions. The Crystal Lakes area has indeed had a history of sporadic growth and has never chosen to become a governmental entity or political force. The area has existing mixed land use, such as farms and residential dwellings side by side in a semi-rural, semi-urban pattern. This mixed land use is composed of three separate socio-geographic areas: Crystal Lakes, Medway, and Park Layne Manor; all of which have separate and common problems. A major problem is the area's dependency upon commerce and government outside its boundaries for its survival.

While the Crystal Lakes Questionnaire did not reveal surprising or earth-shattering data, it did indicate some very interesting information. First of all, the people are very satisfied living in Crystal Lakes and they have a strong desire to have the community remain separate from surrounding development. Secondly, the residents highly value the rural countryside and also place a high value on such urban improvements as sewer and water. Many of the desires expressed by the residents through the questionnaire are conflicting

with one another when considering long-term land uses. However, this illustrates the value of gathering community input when trying to solve urban growth and its influencing factors.

Weak county zoning and subdivision regulations, combined with soil conditions, flood plain, and lack of utilities are presently affecting urban growth. The need for control of land development in the Crystal Lakes area appears slight. Present urban expansion is reaching outward toward the study area and urban pressures will then multiply quickly.

The lack of a local governmental structure and effective land development controls could be disastrous for the area under study. A single decision by the county could, as the economic study describes in the effects of utility development, make possible, in the name of community improvement, undesirable high density housing development.

Transportation is already highly developed in and around Crystal Lakes. This does not lessen the importance of proper planning as to sociological, economic, and environmental factors present in the area. It is because of such lack of planning that the 675 Dayton Bypass is inappropriate in its concept and development. Agreed, while the vast majority of the

residents of Crystal Lakes work in the Dayton area, the law of diminishing returns seems to apply to the total proposed highway development surrounding the study area.

In short, the Crystal Lakes Study Area and its urban land use determinants are like a ship without a captain nor a course to follow. Immediate action is needed to unite and give direction to any possible design measures appropriate to direct future urban growth.

NOTES

1. Clark County-Springfield, Ohio Regional Planning Commission, "A Development Plan for the Medway, Crystal Lakes, Park Layne Namor Area, p.1 (1969)

2. Miami Valley Regional Planning Commission, "The Regional Development Study," p. 3 (Jan., 1972)

3. Hoyt, Homer, Homer Hoyt Institute Urban Land Use Requirements 1968-2000, p. 11

4. Clawson, Marion, Suburban Land Conversion in the United States, p. 132 (1972)

5. Bland, Jim, "New Deal for Land in Works," Dayton Daily News (March 12, 1973)

6. Clark County-Springfield, Ohio Regional Planning Commission, op. cit., p. 10

7. Ohio Deaprtment of Transportation, "Clark County Highway Planning Report," p. 39 (1970)

8. Clark County-Springfield, Ohio Regional Planning Commission, op. cit., p. 28

9. Ibid. p. 8

10. Bland, op. cit.

11. Helsel, Mel, "Crystal Lakes Area Soils," Soil Conservation Service, (Feb. 6, 1973)

12. Ibid.

13. Clark County-Springfield, Ohio Regional Planning Commission, op. cit., p. 7

14. Ibid. p. 9

15. Ibid.

16. Bland, op. cit.

17. Clark County-Springfield, Ohio Regional Planning Commission, op. cit., 0 24

18. Clark County-Springfield, Ohio Regional Planning Commission, "Comprehensive Utility Report," (1968)

19. Helsel, op. cit.

20. Clawson, op. cit., p. 132

SECTION IV

DESIGN ALTERNATIVES

DESIGN ALTERNATIVES
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IV. Design Alternatives

The main conclusion to be drawn from this study of Crystal Lakes, Ohio, is that at present there are no realistic design alternatives. This is not to say that another projection or estimated proposal could not be put forth as the solution. But, rather to simply state as fact that there are no existing controls of land use that could make any design alternative worth the paper it is drawn on. To suggest a long term physical design solution is simply presumtuous, since there is only physical conditions to input into a design process and no input as to long term governmental, economic, social, or land development regulations controlling the design solution.

Having put aside efforts to physically design for the urban growth of Crystal Lakes the author will attempt to propose needed changes and additions to the land development determinants effecting the area. After studying urban sprawl, planning, and a specific site one becomes attuned to the major elements affecting a study area. After having gone through such thought process, the following discussion highlights some of the conditions required for Urban Design in the areas of: Governmental Structure, Utilities, Transportation, Land Development Controls.

Governmental Structure

Crystal Lakes, not being a political entity, is facing an extremely difficult problem, that being, how to be influential in determining surrounding land use. The questionnaire indicated that the majority of the Crystal Lakes residents desire to be a separate community, but also to have urban improvements. There is a direct conflict in these desires because the economy of developing sewer and water dictates incorporation of the area and thus inclusion of Crystal Lake; as would a governmental solution of controlling surrounding land use. The incorporation of these separate communities in a governmental unit offers the best opportunity for the Crystal Lakes Area to direct and determine local land use policy while allowing regional goals and planning to occur in a meaningful manner.

What the governments of the region need is an overall policy for directing new urban growth. This new urban policy would be guided by a long range Regional design. Agreement to such a design would include smaller local governments; who then would exercise controls, developed for the total region, over the development within their local area.[1] Determination of the significant design elements, such as relative

density of land development, the interrelationships between residental and industrial and distribution of open space would have to be exercised at the regional level.

A planning region with a comprehensive land control package would allow an incorporated Crystal Lakes to control development through a strong framework of uniform regional development codes. These codes would delineate the predetermined transportation and utility service for the area. A prerequisite for such land use controls is the addition of governmental powers and judical acceptance for the importance of regional and land use planning. Under such a program, restrictive jurisdictions would utilize all available control measures to guide future growth according to the criteria of the regional design.[2] Important to Crystal Lakes would be consideration to open space development, as the questionnaire indicated rural countryside was valued highly by its residents.

State enabling legislation should be modified to facilitate the creation of a regional organization (a voluntary association or an existing regional agency) which could acquire and protect open space land through purchase, gift, or eminent domain. Legislation should also accommodate "gradual acquisition" methods, such as installment purchase, options to purchase, purchase and lease-back, and purchase of "development rights."[3]

Such an agency would assemble land for present and future urban needs and would release it to private developers and public agencies according to the requirements of an area-wide planning program.

Examination of this objective reveals that a Regional approach is an absolute necessity for its achievement, involving significant change in the areas affecting the location, character and timing of land development. While these issues do not presently constitute insurmountable problems for the Crystal Lakes Study Area, efforts of unprecedented magnitude will be required if the present trend continues in the Region.

Utilities

As previously stated the majority of Crystal Lake residents desire urban utilities for their community. While utility development is needed by existing development and ecologically to preserve water quality in Crystal Lakes, there is a conflict with the desire to maintain the rural countryside left in the area. The economic study clearly pointed out the danger to land development pressures caused by utilities. Such community improvements should not occur in Regional Designing unless extension of water and sewer lines from the urbanized areas are

controlled by predetermined and coordinated local policies, and ultimately by a Regional utility authority or authorities.[4] Such an authority would have to review and comment on all public facility investments, advising local governments on location and timing of such projects to achieve maximum compatability with the Regional Plan. Evidence of such compatability should be a prerequisite to obtaining state and federal funding.[5]

Transportation

There are several conflicts found in the Crystal Lakes Area concerning transportation both internal and external in nature. The internal problems of speeding in residential areas can be solved by more stringent enforcement of speed limits as proposed in questionnaire responses. The proper level of enforcement is doubtful of being reached unless incorporation takes place to supply needed police protection. Incorporation, of course, is in conflict with the community's desire to remain separate. These circulation and traffic problems are minor in effect; however, the major transportation penetrators are the major concern in land development.

The major penetrators are important to the Crystal Lakes Area since it is a bedroom community dependent on outside economic and industrial facilities for its existence. The economic study and environmental comments made in the site study emphasised the need for improvement and the importance of economic conservation of land and natural resourses. Therefore, it is proposed that a Multi-region transportation authority would be required to plan and administer a transportation system compatible with planned Regional development.[6] All requests for state and federal funding of transportation facilities would be evaluated to determine their compatability with the selected Regional land pattern, with the objective of both shaping and serving the recommended land development form.[7] Hopefully such a transportation authority would eliminate such over designing as the proposed 675 bypass along with the environmental damage it would create.

Land Development Controls

With the incorporation of Crystal Lakes and its surrounding communities into one governmental unit, full participation as to the means and goals of land development controls is possible. Some may say that

since the Crystal Lakes residents want to be separate, are buffered by physical site conditions limiting high density development, and lack needed utilities to develop a high density residential area, that the expense of incorporation is needless, as a method to control land use. The economic study clearly warns that in time it will be economical for large developers to develop their own utilities and service should controls not limit land use. The uniting of these rural suburbs allows the residents to have a voice and representation in planning and enforcement of local land development totally lacking now.

The individual government units exercising control of development within the region would have to submit their land development regulations to the Regional Planning Agency for review and based upon criteria drawn from the original agreed to Regional Plan coordinate and correct conflicting regulations.[8] The objective would be land use regulation that carefully considered unique value, without neglecting important Regional considerations.

Local units of government would then exercise firm controls over development within the framework of a uniform Regional development plan which is delineated by predetermined utility service, transportation,

and development codes. With such a planning program the Crystal Lake Area could utilize all available control measures to guide future growth according to the criteria approved for the Regional Development Plan.

Regional Planning must also concern itself with the problem of taxation as a land use determinant and how areas like Crystal Lakes should structure their tax system.[9] Proper structure of the tax base is necessary to discourage land speculation and reduce the dependence of the region and "Crystal Lakes Incorporated" upon a developmental tax base.

Enabling legislation is required to broaden the tax base and facilitate a uniform distribution of tax revenues throughout the Region, based upon identified factors of need. More specifically, a large part of the financial burden for key local government activities--particularly schools and welfare--needs to be shifted from local property tax bases to a broader base.[10]

In summation it should be said that the Northeast Dayton Region (Crystal Lakes, Ohio) is in danger of spreading a hodge-podge of urban sprawl so lacking

in fundamental rationality as to make land use designing or planning an exercise in futility. As William Ruckelshaus, head of the Environmental Protection Agency, said recently, "In my opinion, there is no way to avoid integral planning of land use with transportation, housing, utilities, farm policy and so on. It is coming. The only question now is whether it will be rational and well thought out, or impulsive and highly charged with emotion..." [11]

NOTES

1. Clawson, Suburban Land Conversion in the United States, p. 251 (1971)

2. Miami Valley Regional Planning Commission "The Regional Development Study," p. 12

3. Clawson, op. cit., p. 355

4. Reps, John W. and Smith, Jerry L., Control of Urban Land Subdivision, p. 165 (1963)

5. Clawson, op. cit., p. 347

6. Miami Valley Regional Planning Commission "Tool Kit for Plan Implementation." p. 8 (1972)

7. Perloff, Harvey S., and Wingo, Jr., Lowdon, Issues in Urban Economics, p. 607 (1970)

8. Miami Valley Regional Planning Commission "Tool Kit for Plan Implementation." p. 9

9. Clawson, op. cit., p. 350

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11. Bland, Jim, "New Deal for Land in Works," Dayton Daily News, (March 12, 1973)

APPENDIX I

CRYSTAL LAKES SAMPLE QUESTIONNAIRE

Maybe it is not easy for you to say why you enjoy living in Crystal Lakes. Most of us do not give this question much thought; it is only when something important is removed or changed that we react and realize the role it played in our lives. Planners want to make sure that the plans for the community consider things of importance to the residents. To do this they need to know what is of value to you.

The Crystal Lakes Property Owners Association is working with an Environmental Design graduate student on a project to provide an opportunity for citizens to express what they feel should be done within the community.

This project is directly concerned with the physical surroundings in Crystal Lakes and the fiscal planning of the Crystal Lakes Property Owners Association.

The conclusions and goals derived from this survey will be used to develop suggestions for specific developments in Crystal Lakes. The results of this study will be displayed and presented in Crystal Lakes to a meeting of the Property Owners Association. It is hoped that you will then participate in evaluating what has been proposed.

CRYSTAL LAKES QUESTIONNAIRE

Name_____(optional)

Street_____

Sex M_____ F_____ Age_____

Number in family _____ No. of males_____ No. of females_____

Occupation_____

Where is employment located?_____

Education _____years

Home ownership Own_____ Rent_____

Length of residency _____years

Number of automobiles _____

1. How would you describe the area in which you grew up? (circle answer)

   farm rural small town suburban large city

2. How satisfied are you with living in Crystal Lakes? (circle answer)

extremely satisfied	very satisfied	somewhat satisfied	not very satisfied	not at all satisfied

3. If funds became available for community improvements, for what should they be spent?

   _____

   _____

4. If you had the opportunity, which of the following areas in Crystal Lakes would you show an out-of-town guest? (✓)

   business district_____
   beach.....
   clubhouse.....
   the Lakes.....
   local homes.....
   rural countryside_____

5. How likely do you believe it is that Crystal Lakes will grow significantly in the next ten years? (circle answer)

very likely unlikely some likely very likely

6. In Crystal Lakes what is your----

least favorite place?_____

most favorite place?_____

7. What place in Crystal Lakes is the----

most in need of change?_____

most attractive?_____

8. List the community facilities that you feel to be of particular value.

_____

_____

9. How important is it that the community have a plan for development? (circle answer)

not at all very little some important very important

10. Do you feel that property value is affected by community improvements? (✓)

yes_____

no_____

11. Do you feel that the value of your property is increased by the Lakes within the community? (✓)

yes_____

no_____

If yes, why?_____

_____

12. The following comments are concerned with the Lakes in the community. What are your feelings toward each of these statements? (✓)

	strongly agree	agree	agree conditionally	disagree	strongly disagree
The Lakes need improvement.					
The Lakes are attractive.					
The Lakes are polluted.					
The Lakes are valuable recreation.					
The Lakes have an excellent beach.					
The Lakes offer good fishing.					

13. How important are the following items as to their need in the community? (✓)

	not at all important	unimportant	moderately important	important	extremely important
Sewer and water					
Street lighting					
Pedestrian walks					
Dredging lake channels					
Beach improvements					
Planting around lakes					
Street improvements					
Parks and playgrounds					

14. Do you know of any group in the Crystal Lakes community working to improve the area? (✓)

yes_____

no_____

If yes, what is it's name?_____

15. Do you feel it is in the community interest to maintain Crystal Lakes as a separate community? (✓)

yes_____

no_____

16. Have you heard of the Crystal Lakes Property Owners Association? (✓)

yes____

no_____

* Six categories instead of five. Well should have been dropped.

If yes, how effective is the Crystal Lakes Property Owners Association in reflecting your concerns? (circle answer)

completely very well reasonably well well poorly not at all

17. Do you belong to the Crystal Lakes Property Owners Association? (✓)

yes_____

no_____

If not, why?_____

_____

MEMBERS AND NON MEMBERS OF THE CRYSTAL LAKES PROPERTY OWNERS ASSOCIATION PLEASE ANSWER THE REMAINING QUESTIONS. IF YOU ARE NOT A MEMBER OF THE CRYSTAL LAKES PROPERTY OWNERS ASSOCIATION, ANSWER THE FOLLOWING QUESTIONS AS THEY AFFECT YOUR POSSIBLE MEMBERSHIP. (Present Crystal Lakes Property Owners Association dues are $20.00 a year.)

18. Should the Property owners Association raise its membership dues to make needed improvements, would this affect your membership? (✓)

yes_____

no_____

* Wording should have been clearer. Double meaning between should and would.

* Indicates needed corrections

19. If an increase in Property Owners Association dues were to take place, what in your opinion would be a fair increase? (√)

$5.00___ $10.00___ $15.00___ $20.00___ $25.00 or more___

your suggestion $_____

20. If a maintenance membership (excluding swimming privileges) were offered to raise needed money for maintaining and improving community property, would you consider joining the Crystal Lakes Property Owners Association? (√)

yes_____

no_____

If no, why?_____

_____

21. What would you consider to be a reasonable cost for such a maintenance membership? (√)

$5.00___ $10.00___ $15.00___ $20.00___ $25.00 or more___

22. Would you favor a one-time assessment of all members of the Crystal Lakes Property Owners Association instead of an increase in dues? (√)

yes_____

no_____

23. If an assessment of Crystal Lakes Property Owners Association members took place, what in your opinion would be a fair amount? (√)

$10.00___ $20.00___ $30.00___ $40.00___ $50.00___

your suggestion $_____

24. In your opinion what are the present traffic conditions found in Crystal Lakes? (√)

poor___ fair___ good___ very good___ excellent___

25. What, if any, are the problems with vehicular traffic within the community?

_____

_____

26. In your opinion what are the present pedestrian conditions found in Crystal Lakes? (✓)

poor___ fair___ good___ very good___ excellent___

27. What, if any, are the problems with pedestrian movements within the community?

_____

_____

28. If you had to choose the projects for community improvement, what would they be?

_____

_____

APPENDIX II

QUESTIONNAIRE DATA

			N	MEAN	STD. DEV.
1.	Street (Neighborhood)		117	2.19	.85
	Coding				
	1. South section	(26)			
	2. Lake section	(49)			
	3. Northwest section	(35)			
	4. Northeast section	(7)			
2.	Sex		120	1.30	.46
	1. Male	(84)			
	2. Female	(36)			
3.	Age		104	46.11	14.57
4.	Number in family		123	3.03	1.48
5.	Number of males		114	1.65	.91
6.	Number of females		113	1.53	.79
7.	Occupation		118	4.76	1.54
	Coding				
	1. Housewife	(9)			
	2. Professional	(1)			
	3. Technical	(11)			
	4. Retired	(24)			
	5. White collar	(20)			
	6. Blue collar	(49)			
	7. Military	(4)			
8.	Employment located		87	2.95	1.20
	CODING				
	1. Crystal Lakes	(7)			
	2. W.P.A.F.B.	(22)			
	3. Dayton	(42)			
	4. Fairborn	(6)			
	5. Springfield	(4)			
	6. New Carlisle	(6)			

* N is the number of total responses to the question

* Std. Dev. stands for standard deviation

* Number in parenthesis indicates frequency of responses

		N	MEAN	STD. DEV.
9.	Education	114	3.20	1.14
	Coding			
	1. Below high School (10)			
	2. To high school (12)			
	3. High school grad. (57)			
	4. Some college (18)			
	5. College graduate (14)			
	6. Graduate work (3)			
10.	Home Ownership	124	1.13	.34
	Coding			
	1. Own (108)			
	2. Rent (16)			
11.	Length of Residency	123	4.13	2.30
	Coding			
	1. 1 or less years (18)			
	2. 2-5 (20)			
	3. 6-10 (19)			
	4. 11-15 (13)			
	5. 16-20 (17)			
	6. 21-25 (10)			
	7. 26-30 (12)			
	8. 31 or more (14)			
12.	Number of Automobiles	121	1.74	.62
	Actual no. of autos coded			
13.	Describe area you grew up in	124	2.36	.84
	Coding			
	1. farm (23)			
	2. rural (18)			
	3. small town (38)			
	4. suburban (10)			
	5. large city (35)			

* N is the number of total responses to the question

* Std. Dev. stands for standard deviation

* Number in parenthesis indicates frequency of responses

		N	MEAN	STD. DEV.
14.	How satisifed are you in Crystal Lakes?	126	2.36	.84
	1. Extremely (16)			
	2. Very (60)			
	3. Somewhat (38)			
	4. Not very (8)			
	5. Not at all (2)			
15.	Funds for community improvements should be spent	106	2.50	2.04
	1. Lake and grounds (48)			
	2. Street lights (16)			
	3. Sewer and water (16)			
	4. Private property (7)			
	5. Sidewalks (4)			
	6. Streets (5)			
	7. Lake channels (2)			
	8. Beach (3)			
	9. Traffic control (2)			
16.	Which would you show an out-of-town guest?	120	6.15	1.77
	1. Business district (0)			
	2. Beach (2)			
	3. Clubhouse (1)			
	4. The lakes (34)			
	5. Local homes (2)			
	6. Rural countryside (20)			
	7. 2,3,4 of above (35)			
	8. 2-6 of above (14)			
	9. 2,3,4,6 of above (12)			
17.	Likelyhood of Crystal Lakes growing	122	2.88	1.09
	1. very likely (11)			
	2. likely (30)			
	3. some (47)			
	4. unlikely (15)			
	5. very unlikely (12)			

		N	MEAN	STD. DEV.
18.	Least favorite place in Crystal Lakes	76	3.26	1.32
	1. Lakes and channels (8)			
	2. Rundown private property (8)			
	3. Business area and bars (37)			
	4. Park Drive area (7)			
	5. Beach (11)			
	6. North Lake area (5)			
19.	Most favorite place in Crystal Lakes	88	3.52	1.45
	1. Rural countryside (1)			
	2. Home and neighborhood (28)			
	3. Clubhouse (13)			
	4. Lakes (30)			
	5. Anglers Lake (8)			
	6. North Lake (2)			
	7. Beach (6)			
20.	Place most in need of change in Crystal Lakes	84	2.85	1.85
	1. Lakes (28)			
	2. Private property (21)			
	3. Bars (2)			
	4. Beach (12)			
	5. Business area (12)			
	6. Lake channels (7)			
	7. Roads and streets (2)			
21.	Most attractive place in Crystal Lakes	62	2.29	.96
	1. Home (11)			
	2. Lake area (31)			
	3. Clubhouse (13)			
	4. Angler's Island (5)			
	5. Beach (2)			

		N	MEAN	STD. DEV.
22.	Community facilities felt to be of particular value	87	3.49	1.36
	1. Commercial (3)			
	2. Fire department (24)			
	3. Recreation (21)			
	4. Clubhouse (7)			
	5. Lakes and grounds (30)			
	6. Good roads (2)			
23.	How important is it community have a plan for development?	119	4.17	1.05
	1. not at all (6)			
	2. very little (2)			
	3. some (14)			
	4. important (34)			
	5. very important (57)			
24.	Do you feel property value is affected by community improvement?	122	1.0	.27
	1. yes (111)			
	2. no (11)			
25.	Do you feel your property is more valuable because of the lakes?	116	1.32	.47
	1. Yes (78)			
	2. No (38)			
26.	Why yes to question 25	68	1.23	.43
	1. recreation/beauty (52)			
	2. resale/monitary (16)			
1-32.	What are your feelings toward the lakes in the community?			
	Lakes need improvement	120	1.59	.75
	Lakes are attractive	119	2.39	.93
	Lakes are polluted	120	2.41	1.07
	Lakes are valuable recreation	120	1.54	.76
	Lakes have an excellent beach	113	2.99	1.11

		N	MEAN	STD. DEV.
	Lakes offer good fishing	113	2.80	1.08
	1. strongly agree 2. agree 3. agree conditionally 4. disagree 5. strongly disagree			
3-40.	How important are these items as to their need in the community?			
	Sewer and water	122	3.58	1.44
	Street lighting	124	3.63	1.28
	Pedestrian walks	120	2.90	1.37
	Dredging lake channels	120	4.05	1.04
	Beach improvements	118	3.90	.98
	Planting around Lakes	112	3.46	1.17
	Street improvements	119	3.36	1.17
	Parks and playgrounds	119	3.86	.95
	1. not at all important 2. unimportant 3. moderately important 4. important 5. extremely important			
41.	Do you know any group working to improve the community?	122	1.57	.49
	1. yes (52) 2. no (70)			
42.	What is the name of this group in question 41?	47		
	Identified Crystal Lakes Property Owners Association			
43.	Is it in Crystal Lakes' interest to remain a separate community?	117	1.11	.31
	1. yes (104) 2. no (13)			

		N	MEAN	STD. DEV.
44.	Have you heard of the Crystal Lakes Property Owners Association?	123	1.09	.29
	1. yes (111)			
	2. no (12)			
45.	How effective is the C.L.P.O.A. in reflecting your concerns?	101	3.71	1.29
	1. completely (1)			
	2. very well (14)			
	3. reasonably well (41)			
	4. well (15)			
	5. poorly (17)			
	6. not at all (13)			
46.	Do you belong to the C.L.P.O.A.?	125	1.47	.50
	1. yes (66)			
	2. no (59)			
47.	Why not a C.L.P.O.A. member?	41	4.24	2.29
	1. unfamiliar with it (9)			
	2. don't know where to go (4)			
	3. disabled (1)			
	4. does poor job (6)			
	5. renter (6)			
	6. cost (5)			
	7. no time to participate (10)			
48.	Should the C.L.P.O.A. raise its dues, would this affect your membership	114	1.65	..48
	1. yes (40)			
	2. no (74)			

		N	MEAN	STD. DEV.
49.	What is a fair increase in C.L.P.O.A. dues?	86	2.18	1.36
	1. $5.00 (36)			
	2. $10.00 (27)			
	3. $15.00 (2)			
	4. $20.00 (13)			
	5. $25.00 + (8)			
50.	Would you join a maintenance membership in the C.L.P.O.A.?	98	1.37	.48
	1. yes (61)			
	2. no (37)			
51.	If no to question 50, why not?	22	2.36	1.09
	1. Can't participate (6)			
	2. Ruin membership (6)			
	3. Cost (6)			
	4. Can't control money (4)			
52.	What is a fair price for a maintenance membership?	70	2.78	1.49
	1. $5.00 (18)			
	2. $10.00 (19)			
	3. $15.00 (6)			
	4. $20.00 (14)			
	5. $20.00+ (13)			
53.	Would you favor a one-time assessment over dues increase?	99	1.75	.43
	1. yes (25)			
	2. no (74)			

		N	MEAN	STD. DEV.
54.	What is a fair amount for an assessment?	49	1.97	1.24

1.	$10.00	(24)
2.	$20.00	(12)
3.	$30.00	(7)
4.	$40.00	(2)
5.	$50.00	(4)

55.	What is your opinion of present traffic conditions in Crystal Lakes?	121	1.84	.77

1.	poor	(45)
2.	fair	(52)
3.	good	(22)
4.	very good	(2)
5.	excellent	(0)

56.	What are the problems with vehicular traffic in Crystal Lakes?	108	2.18	.72

1.	enforcement	(7)
2.	speed/noise	(87)
3.	bicycles	(1)
4.	street design	(13)

57.	What are the present pedestrian conditions in Crystal Lakes?	121	1.92	.92

1.	poor	(47)
2.	fair	(45)
3.	good	(23)
4.	very good	(4)
5.	excellent	(2)

58.	What are the problems with pedestrian movement in Crystal Lakes?	81	2.46	.98

1.	auto danger	(6)
2.	pedestrian conflict	(47)
3.	no walks	(19)
4.	bicycles	(2)
5.	none	(7)

	N	MEAN	STD. DEV.
59. What would you choose for the projects for community improvement?	98	3.67	2.43

1. clean up lake area (32)
2. improve streets (11)
3. beach improvements (6)
4. sidewalks (7)
5. street lights (13)
6. clean up private property (14)
7. sewer and water (9)
8. recreational improvements (6)

APPENDIX III

QUESTIONNAIRE ANALYSIS

1. Descriptive analysis of the average population responding to the questionnaire.

1.	sex	male
2.	age	46
3.	number in family	3
4.	occupation	blue collar
5.	education	high school
6.	home ownership	own
7.	length of residency	11-15 years

2. Two way analysis of desired community improvements. Variables 15 and 59 to check questionnaire as to its biasness.

Top 4	Variable 15	Variable 59
Lakes and grounds	27	39
Street lights	13	13
Sewer and water	8	15
Private property	11	4

Since the top four responses all remained the same order with only slight variance in ratio, it is felt that the questionnaire did not bias the answers given.

3. How satisfied are you with living in Crystal Lakes?

As compared to:

A. Sex--Females are slightly more satisfied than males. (67% to 62%)

B. No. in family--No significant variation in satisfaction to family size and all groups more than somewhat satisfied.

C. Occupation--The following gives the break down as to response:

Very satisfied	Somewhat satisfied
professionals	retired
technical	blue collar
white collar	military
housewife	

(Retired persons were the most dissatisfied.)

D. Education--No significant variation with all groups being more than somewhat satisfied.

E. Home ownership--No significant variation with owners and renters being more than somewhat satisfied.

F. Length of residency--No significant variation but residents of 11-15 are most satisfied, residents of 21-25 years most dissatisfied. No trend was strongly indicated

G. Area of residnecy--All areas very satisfied with the south section being the least unanimous at 54%.

H. Age group--Ages 31 through 60 are very satisfied (+65%), with below 30 less satisfied (55%) and over 60 most dissatisfied (47%).

I. Number of automobiles--With 1 to 4 cars available satisfaction increased from 46.4% to 100%.

J. Area you grew up in--Satisfaction increases from farm (47.8) to suburban (80%) with large towns less satisfied (60%) than the suburbs.

K. Employment location--While satisfaction was not dependent on location of employment, the Dayton and Wright Patterson Air Force Base employees were most satisfied (+65%).

L. Importance of planning--Relationship between satisfaction and planning importance was too nebulous to accurately read.

4. How would you describe the area in which you you grew up?

As compared to importance of:

A. Sewer and water--All groups indicated a +50% importance with large town backgrounds giving the lowest rating.

B. Street lights--With the exception of suburbs all groups rated a +50% importance.

C. Pedestrian walks--All groups rated below 50% importance with farms and suburbs indicating the most unimportance.

D. Dredge channels--All groups rated +60% and gave approximately equal ratings.

E. Beach improvement--All groups rated +50% importance with farm indicating the least and suburbs and large cities rating the highest.

F. Lake plantings--Only rural and suburbs rated over 50% importance.

G. Street improvement--Only small towns and large cities rated over 50% importance.

H. Parks and playgrounds--All groups rated +50% or more importance with suburbs indicating 50% exactly.

I. Property value--All groups rated +75% property value increased by community improvements.

5. Number in family

As compared to importance of:

A. Sewer and water--No correlation at all between desire for sewer and water and family size.

B. Street lights--No significant variance but families of 1,2, or 3 were only ones over 50%.

C. Pedestrian walks--No significant variance; family numbers all indicated negative attitudes toward walks.

D. Dredge channels--All family groups rated dredging high (+65%).

E. Beach improvement--All family groups rated a +50% with family numbering 3 thru 7 increasing up to 100%.

F. Lake plantings--No significant data but smaller families ratings to 50%.

G. Street improvement--No significant data; families numbering 1,3,5,6,7 rated 50%.

H. Park and playground--Families numbering 1-3 rated 50% while 4-7 rated +75%.

6. Education

As compared to importance of:

A. Sewer and water--All groups rated +50% with high school to graduate studies rating a higher +65%.

B. Street lights--All groups up to some college rated 50% or more while college graduates and graduate studies group were below 50%.

C. Pedestrian walk--No meaningful data, very low rating with to high school and college groups just 50%.

D. Dredging channels--All groups rated a high +70%.

E. Beach improvement--All groups rated a +50% with no meaningful variance.

F. Lake Plantings--All groups rated at about 50% with no meaningful variance.

G. Park and playgrounds--Groups below some college rated +70% with high education groups rating downwards to 50%.

7. Home ownership

As compared to importance of:

A. Sewer and water — owners--- 60%
renters---+75%

B. Street lights — owners--- 50%
renters---+75%

C. Pedestrian walk — owners--- 30%, renters---+60%

D. Dredging channels — owners--- 75%, renters---75%

E. Beach Improvements — owners--- 68%, renters--- 60%

F. Lake plantings — owners--- 50%, renters--- 55%

G. Street improvements — owners--- 45%, renters---+75%

8. Length of Residency

As compared to importance of:

A. Sewer and water--All groups 50% with only variance being less than one year rating 65%.

B. Street lights--Groups rated +50% with 11-15, 16-20, 26-30 years rating less than 40%.

C. Pedestrian walks--All groups rated below 50% with 11-15 and 26-30 rating below 20%.

D. Dredging channels--All groups rated a +70% with over 5 years rating higher.

E. Beach improvement--Groups rater +60% with the exception of 16-20 years which rated a lower 50%.

F. Lake plantings--Wide variance with +75% to 30% occuring across groups.

G. Street improvement--Less than 1 and 2-5 years rated +60% but rest of group rated -50% down to 20%.

H. Park and playgrounds--Groups rated +60% with an unexplained variance of 21-25 years rating 40%.

9. Lakes need improvement

As compared to importance to:

A. Sewer and water--50% strongly agreed.

B. Channel dredging--60% strongly agreed.

C. Beach improvements--60% strongly agreed.

D. Lake plantings--45% strongly agreed.

As compared to how satisfied are you in Crystal Lakes:

Satisfaction--50% highly satisfied strongly agreed lake needs improved.

As compared to Crystal Lakes Property Owners Association membership:

Membership--54% were members and of those 85% strongly agreed to statement that lake needs improved.
46% were non members and 80% strongly agreed to the statement.

10. Community improvements increase property values.

As compared with importance of:

A. Sewer and water--56% were affirmative to sewer and water.

B. Street lights--55% were affirmative to street lights.

C. Pedestrian walks--35% were affirmative to pedestrian walks.

D. Dredging channels--66% were affirmative to dredging channels.

E. Beach improvements--60% were affirmative to beach improvements.

F. Lake plantings--45% were affirmative to planting around lakes.

G. Street improvement--42% were affirmative to street improvement.

H. Park and playground--60% were affirmative to park and playground.

As compared to area you grew up in:

Farm----------80%
Rural---------100%
Small town-----98%
Suburban------100%
Large town-----93%

11. Property value increased by lakes

As compared to area of residence in Crystal Lakes:

South section----------60%
Lake section-----------75%
Northwest section------63%
Northeast section------40%

As compared to lake needs improvement:

56% rated strong need for improvement.

As compared to Lake evaluation of:

A. Lakes are attractive--50% strongly agreed.

B. Lakes are polluted--28% strongly agreed.

C. Lakes are valuable recreation--62% strongly agreed.

D. Lakes have excellent beach--23% stronly agreed.

E. Lake offers good fishing--29% strongly agreed.

As compared to property value increased by community improvement.

58% responded affirmative to property value questions.

As compared to membership in Crystal Lakes Property Owners Association.

70% of members answered affirmative.
60% of members answered affirmative.

12. Maintain Crystal Lakes as a separate community:

As compared to:

A. Length of residency--All groups rated over +70%.

B. How satisfied are in Crystal Lakes--56% of all residences are satisfied and agree to keep separate community.

C. Crystal Lakes will grow--20% of all residences agree Crystal Lakes will grow and desire separate community.

D. Importance of community--67% of all residences agree to importance of planning and separate community.

E. Property value increased by community improvements--81% of all residences were affirmative to property value and separate community.

13. Existing traffic conditions

As compared to:

A. Length of residency--All groups rated +65% that conditions were poor.

B. Number of automobiles--All groups rated 50% or more that roads were poor.

Number of automobiles

1----------88%
2----------65%
3----------66%
4----------50%

(More automobiles would seem to indicate a lessening of attitudes toward traffic conditions.)

C. Community improvements--All indicated poor traffic conditions.

Type of improvement--------favorability %
Street Lighting----------78%
Street improvement-------80%
Traffic controles-------100%

D. Problems with vehicular traffic--All indicated poor traffic conditions.

Type of problems	problem rating
Enforcement	60%
Speeding	87%
Bicycles	50%
Street design	70%

E. Proposed street improvement--34% of all residences felt that traffic conditions were poor and streets should be improved.

14. Existing pedestrian conditions.

As compared to:

A. Number in family--All groups rated +60% with 2,3, and 4 member families rating +70% that conditions were poor.

B. Sex--No meaningful data or variants, males 81%, females 75% indicating poor conditions.

C. Length of residency--No meaningful variants with over 60% of all groups indicating poor conditions.

D. Number of automobiles--All groups 70% for poor conditions, with little variance.

E. Area you grew up--All groups indicated poor conditions.

Area	Frequency
Farm	80%
Rural	90%
Small town	95%
Suburban	60%
Large towns	85%

F. How satisfied are you--78% of the population is satisfied living in Crystal Lakes but 62% of these people rate the pedestrian conditions poor.

G. Importance of community planning--All groups rated 50% poor conditions with no meaningful variance.

H. Property value increased by community improvements--72% of the residences felt property value increased but pedestrian conditions rated 67% poor.

I. Lake is valuable recreation--62% agree recreation valuable but 71% thought pedestrian conditions poor.

J. Pedestrian walks--71% felt pedestrian conditions poor but only 44% agree to importance of walks.

15. Areas to show an out-of-town guest

	Areas		Histogram
A.	Business district	(0)	+
B.	Beach	(2)	+xx
C.	Clubhouse	(1)	+x
D.	The lakes	(34)	+xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
E.	Local homes	(2)	+xx
F.	Rural countryside	(20)	+xxxxxxxxxxxxxxxxxxxx
G.	B-C-D	(35)	+xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
H.	B thru F	(14)	+xxxxxxxxxxxxxx
I.	B-C-D-F	(12)	+xxxxxxxxxxxx

16. Favorite place in Crystal Lakes

	Places		
A.	Rural countryside	(1)	+x
B.	Home and neighborhood	(28)	+xxxxxxxxxxxxxxxxxxxxxxxxxxxx
C.	Clubhouse	(13)	+xxxxxxxxxxxxx
D.	Lakes	(30)	+xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
E.	Anglers Island	(8)	+xxxxxxxx
F.	North Lake	(2)	+xx
G.	Beach	(6)	+xxxxxx

17. Valuable community facilities

	Facilities		
A.	Commercial	(3)	+xxx
B.	Fire department	(24)	+xxxxxxxxxxxxxxxxxxxxxxxx
C.	Recreation	(21)	+xxxxxxxxxxxxxxxxxxxxx
D.	Clubhouse	(7)	+xxxxxxx
E.	Lake and grounds	(30)	+xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
F.	Good roads	(2)	+xx

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